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CIS/RUSSIA ARMED FORCES

Ad Campaign To Draw New Recruits Backed

93UM0460B Moscow KRASNAYA ZVEZDA
in Russian 17 Mar 93 pp 1-3

[Article by Sergey Popov: "A Market Like Any Other: It's Time for the Army to Get Used to the Word 'Advertising'"]

[Text] Essentially our former Soviet Army did not need special advertising. Its rating in the public mind was so solid and high that any doubts or problems fell away of themselves.

One of its successors, the Russian Army, has already had time to learn from its own experience that times have changed. After barely reaching a 55 percent manning level, it was confronted by the fact that given an increased number of deferments and possible adoption of an alternative service law, it is not impossible that without a half year the combat divisions will be transformed into battalions, and the regiments into companies with only officer guards. What is more, with every day the "game rules" are more strictly dictated by market laws, which say that if you want to be chosen, you struggle, you propose, you promote what you can offer the young man hoping to "make something of himself."

Recently on T.V. one general, a worthy man, said that the Army has no need for commiseration and no need for advertising. I guess many would agree with him. At first glance it is all true: what sort of advertising could it be in fact, what sort of "struggling," when it is a question of state importance. Why is it necessary to "attract" someone to what has always been taken for granted?

But let us try to get by without emotions. Yes, one can get angry at their morals and rail at the press and politicians, who in their day gloriously "worked" at creating the unsavory image of the Armed Forces. But this can hardly "abolish" the fact that according to the latest figures, of all the youth registered with the military department, today only 23 percent can be called up.

Yes, the idea of contract service is very attractive, especially against the background of the recent draft campaign, and it is already having some effect. However it is clear that for a potential volunteer, for his choice, much more serious reasons and arguments are needed than for that same draftee. But if a "pro" cannot be convinced through the press, and TV, through graphic, intelligent and catchy agitation that he can not only change his way of life in the service, but also earn a stable wage, acquire an interesting specialty, make a successful career etc, he will quickly find employment for himself in those same commercial structures.

So it is hardly promising to sit idly by, quietly and passively waiting for the people to "see the light," or for some "conscientious" newspaper, fired up with love for the Army, to provide the extravagant publicity.

Another army, the American, once had to deal with problems much like our own. In almost exactly the same way there was a drop in prestige in the public mind, and a transition to a new system of manpower acquisition. But thinking pragmatically that under market conditions military service was, figuratively speaking, a product like many others, [the U.S. Army] set out on a completely natural path: it began to advertise that product. It is common knowledge that today the U.S. Army is one of the most "successful" in the world. But clearly, boiling this down solely to the wealth of the state would be too simplistic, if only because around five thousand professionals are involved over there in the formation of public opinion (read advertisement of the armed forces). And the Americans zealously see to it that military advertising, on television, in the print media, at weapons shows and exhibitions, is as good as commercial advertising. To charge up its "allure" and visual impact, in 1990 alone an additional 20 million dollars were allocated.

Of course one can assert that the rich West "is not our boss," but a fact is a fact: more than 90 percent of the volunteers, when citing the main reasons for signing a contract with the Pentagon, name word for word the slogans most often used in advertising spots on television and on posters at recruiting centers.

But here? What state is our Russian military advertising in today, or is there even such a thing? It is hard to answer such questions unequivocally. And for this there are, as we like to write, objective reasons. Advertising of the Army, as of the state institution overall, and advertising of military service, by contract, say, are new phenomena for our society, both in the theoretical and in the organizational context. One can't help but see the contradictions arising between the need to speed up the recruitment of those ready to perform contract service while using that pre-market experience, [from a time] when "everything was clear to everybody."

For example, the Army press centers and structures for liaison with the public are becoming more active.

Central Television and the "Slavyanka" radio studio of the Defense Department of the Russian Federation are taking to the air waves. The airborne troops have gone to work with alacrity; basically because of the flashy additions to their uniform, even now they attract attention on the street.

Recently I chanced on an advertising poster calendar for a border military school, in which a sweet-looking girl leans on the arm of a lad with such a powerful build that he makes Schwarzenegger look like a skinny boy. And at the same time, one Oleg Gazmanov, with his remarkable song "Officers," can easily "deck" all our intra-departmental advertising when it comes to emotional influence. A malicious remark in some very independent newspaper or a grim story from someone "experienced" in Army ways can inspire fear in hundreds of people.

And whom will the potential candidate "pro" more readily believe, given the current state of affairs, what choice will he make?

I happened to talk on this subject with people who are perhaps closer than any others to the problem, officers of the Main Directorate for Work with Personnel, GOMU of the General Staff. And I did not meet one person who was indifferent, who would not say with pain that untapped reserves "are being used with inadequate aggressiveness and productivity." Even though there have been attempts to really get down to advertising.

A little history. A year or a year and a half ago, a department for advertising of the Armed Forces and military service was formed, but it lasted only a few months, then sank into oblivion in the course of the structural transformations of the Committee for Work with Personnel. Judging from the stories of a former member of it, Col V. Medvedev, the department "died" of natural causes. Judge for yourselves. For example, having the strategic mission of "conducting organizational, research and methodological work to develop advertising of the Armed Forces and methods of conduct of advertising campaigns," it consisted of four men and did not receive even minimum funding. (Compare the situation again with the described millions of dollars in the U.S. Army). And although with the help of one commercial company (which assumed all expenditures, and asked that terms be provided for filming), an excellent clip about the Army was made, judging from the responses, and it was run on television twice. And rumor has it that then the company, after even receiving some sort of prize for it, sold its product to someone at a profit.

This example alone perhaps suffices for one to understand that if the Army, naturally with the help of the state, does not begin advertising itself, if it begrudges the money and time for training of specialists, then no one will do it for them. As for the plans, creative designs, scientific research to be precise, they do exist. For example, associates of the Center for Psychological and Legal Research of the Armed Forces, Lt-Col. B. Frolov and Capt. 2nd Rank A. Smirnov have made a deep study of these questions. What do the military scholars suggest? First of all, a reorientation of thinking, a transition from the formula of "halting falsification and mudslinging" about the Army toward propaganda, under market conditions, of the most attractive features of Army service. In particular, they propose creating a unified concept of advertising work to shape the image of the Army and of the service member as a personality capable of assuming a worthy place in public opinion. It is also a matter of forming a system of coordinated efforts of different subunits of the Defense Ministry to prepare and conduct advertising campaigns in the interests of the Army. They suggest restoring the department of advertising of the Armed Services and military service in the Directorate for Work with Personnel.

The document also contains many interesting ideas regarding the organizational, technical, and financial

solutions of the problem. In short notes unfortunately there is no space to detail their "practical prescriptions" regarding advertising of contract service in cities and countryside and in large enterprises, about the specifics of work of the advertising/recruitment centers in garrisons, and about the sharing of jurisdiction of the leading organs participating in implementation of the advertising concept, and their status. Probably this is a topic for another article. But the very fact that there are specific calculations, awaiting realization, inspires some hope.

Of course it would be naive to expect that a particular document or individual propaganda campaign in itself would solve the difficult problems of the Army. To speak straight to the point, the high social status of the military person in society, his material security and legal protection make the best advertising. So perhaps we must begin serious advertising with that, and today convince the future draftees and volunteers, and the people, that this will of necessity one day be the case.

International Conference on Religion in Army

93UM0479A Moscow KOMMERSANT-DAILY
in Russian 2 Apr 93 p 11

[Article by KOMMERSANT-DAILY Correspondent Nataliya Rusakova, under the rubric: "Aleksiy II Spoke at an Army Forum": "The Patriarch Advocated the Rapprochement of the Church and the Army"]

[Text] Yesterday Patriarch of Moscow and all Rus Aleksiy II delivered a report at the Armed Forces Humanitarian Academy within the framework of the International Forum "Urgent Problems and the Ways for Spiritual-Moral Education of the Armies of Russia and the United States". This was the first meeting at such a high level between the head of the Russian Orthodox Church and representatives of Russia's Armed Forces. The Patriarch stressed the special significance of the spiritual foundation in the army and said that it is necessary to restore the institution of the military and naval clergy in accordance with pre-revolutionary times.

The international conference that assembled servicemen and clergymen of various countries and faiths was the first major step on the path of rapprochement of the Church and the Army. Leading representatives of the military clergy of America and the leadership of the Russian Armed Forces participated in the forum's work. In his report, the Patriarch stressed the indissoluble tie between the Church and the army, the main purpose of which is "defense of the life, freedom and dignity of its people and aid to our fellow human beings". Relying on the facts of history, His Holiness talked about spiritual education in the pre-revolutionary Russian Army when there was a clergyman in each regiment and on each ship. His Holiness also directed attention to the severe current situation in the Russian Army: the serious psychological climate, the absence of "elementary civil rights and the

capability to support their families for people" who have devoted their lives to service to the Fatherland.

While speaking about pastoral work in the army, the Patriarch stressed that the decision on acceptance of Baptism and the selection of confession must be voluntary and believers of other faiths must not be prohibited from meeting with their clergymen. His Holiness also expressed the fear that the restrictive nature of Article 8 on the status of a serviceman that prohibits "refusing duty obligations for reasons relating to religion" may become an obstacle to religious education.

U.S. Army Chief Chaplain Matthew Zimmerman in his speech shared his spiritual-educational work experience (it is curious that there are quite a few women among regimental clergymen in America who are involved with the resolution of family problems and even man a special female division at the present time).

At a separate meeting between Aleksiy II and the American chaplains over a cup of tea, His Holiness called upon the community and laymen to assist the activities of clergymen. In memory of the meeting, Matthew Zimmerman gave Aleksiy II the American Military Clergyman's Medal.

Procurators Discuss WGF Corruption Investigation

93UM0535A Moscow FEDERATSIYA in Russian
No 47, 27 Apr 93 (signed to press 26 Apr 93) pp 1-2

[Interview with Boris Isayenko, senior investigator for particularly important cases, and Vladimir Yelsukov, investigator for particularly important cases, by Yuriy Prokhanov, in the "Exclusive to FEDERATSIYA" column; at the Investigations Directorate of the Russian Federation General Procuracy, date not given: "Clever Business General Style"]

[Text] The three of us sat in a crowded office of the Investigations Department of the Russian Federation General Procuracy located next to Mayakovskiy Square. Boris Isayenko, senior investigator for particularly important cases, and Vladimir Yelsukov, investigator for particularly important cases, were my interlocutors. Both are senior justice counselors. The case which they were telling me about as they rustled the pages of documents and charts, was "particularly important" indeed. It was started one year ago by the general procurator of Russia personally (in general, an unprecedented occurrence), with regard to instances of abuses by officials of the Russian Federation Ministry of Defense. An investigative team, headed by Isayenko, is conducting a painstaking and thorough investigation through thousands of tons of verbal and documentary "ore" which must be mined to obtain a single gram of truth. A lot has already been accomplished by now. This is why the investigation has an opportunity to lift the official veil of secrecy over only one "edge" of the criminal case associated with the operation of the Trade Directorate of the Western Group of Forces

(UTZGV), as well as its superior, the Main Trade Directorate of the former Union Ministry of Defense (the GUTMO, which now is the TsUVT of the Russian Federation Ministry of Defense—the Central Directorate of Military Trade).

B. Isayenko: As they put it, here is the general criminal background of such activities. Centralized deliveries of foodstuffs and manufactured goods to the WGF [Western Group of Forces] ceased after the disintegration of the USSR, and it switched to self-supply. The "westerners" now had to procure everything they needed by signing contracts with foreign, primarily German companies.

Conditions for this existed, because in the local market, supply exceeded demand. In addition, the military could reinforce contracts with barter, due to the availability of certain assets remaining at their disposal after the troops left the FRG. However, the Trade Directorate embarked on strange trading, to put it mildly, which turned into a source of windfall profits for more than 140 foreign companies. Invariably, this was a one-way street: Goods delivered to us were of low quality, or even altogether rejects, of obsolete styles, at inflated prices. Locally, almost no one purchased them, but it was unprofitable to take the goods to Russia for sale. The trap snapped shut. As a result, a total of 100 million has been removed from circulation—and not "flat money," but rather full-fledged German Marks. This meant directly damaging the interests of the state, our interests.

B. Isayenko gave an example of such strange contracts. A certain company, Mir Trade Company, undertook to deliver fuel and foodstuffs in 1992 for a respectable payment. It did deliver... coal dust instead of coal briquettes, and rotten fish and eggs which, on top of that, were infected with salmonella. Meanwhile, pedantic Germans had warned the military twice, in writing, that this "company" was not to be dealt with, that it was not known in the FRG, but a cafe in Berlin with a similar name, which the police closed down for trading in drugs, was known. The warning was not heeded, and we received what we did.

B. Isayenko: At a certain stage, a quite imposing figure ended up in our field of vision—it is just that he could not but end up there: Air Force Lieutenant General Grigoriy Aramovich Karakozov, chief of the GUT himself. With vigor worthy of a better cause, he favored the homegrown company Rekont, which had been unknown to all until then...

Whatever one might say, this was a most interesting organization. It consisted of just three people, perhaps with a view to saving the wage fund. Apart from patronage in high places and excessive commercial ambitions, the organization had absolutely nothing: no subordinated enterprises, no goods, and no money. Still, it was precisely with that company that the WGF Trade Directorate signed in 1991, directly at the hand of Grigoriy Aramovich, a contract for the delivery of video equipment, knitted goods, footwear, and other consumer

goods from South Korea which was most advantageous for the company men. The document had a provision which was without parallel in the cases of other transactions: The buyer guaranteed a respectable advance payment for the goods and issued a bank letter of credit to the seller. This was the utmost in financial courtesy, a genuine most favored treatment clause. As usual, something painfully familiar followed: poor-quality deliveries, inflated prices, missed deadlines. The result was quite appropriate (to be sure, nobody was particularly alarmed): Unsalable goods worth 13 million Marks piling up in the warehouses.

V. Yelsukov: However, the behind-the-scenes role of Karakozov in a transaction with overseas fragrances is perhaps particularly noteworthy. Under an agreement with us, Egypt, which had its helicopters repaired at Russian enterprises, was to pay for this almost entirely with goods in demand, mainly its world-renowned fragrances. In January 1992, the first batch of the aromatic cargo—24 containers—arrived at the port of Izmail from the land of pyramids...

At that point, the full brilliance of the commercial and organizational talents of the general was displayed. He acted military-style, vigorously, promptly, and assertively. Hardly any time had passed since the ship cast anchor at the roadstead, but on 18 January, Instructions of the Russian Government were signed to the effect that the entire delivery was to be made to the Ministry of Defense for subsequent sales to collectives which made repairs. The TsUVTMO and the military trade warehouse were charged with responsible custody and such sales. Having obtained the desired document, Grigoriy Aramovich, in a generous, truly royal gesture, assigned the right to acquire 25 percent of the merchandise to the MGP [Small State Enterprise] Delta in Krasnodar which had surfaced from a place unknown. Karakozov was not in the least embarrassed by the fact that, not being the administrator of the delivery, he did not have the right to do this. That the delivery was to be taken first to a military trade warehouse and undergo prescribed procedures, such as acceptance, examination, the conversion of foreign-exchange value, and so on, was but a hollow formality for the general.

Meanwhile, the plot thickened. In a "mysterious" manner (more precisely, because the general had specifications in his possession), Delta promptly obtained the most valuable part of the total cargo—six containers of exquisite perfume worth 38.4 million rubles [R]. (Let us note that this accounted for almost 44 percent of the value rather than the envisaged 25 percent!). They had not yet even managed to reload them from the ship onto motor vehicles, when—on the same day, 10 April—they were sold, lock, stock, and barrel, to the Limited Liability Company Investa, in faraway Moscow, this time for R50 million. In turn, this company resold the perfume to various commercial structures. This is a familiar chain, is it not?

In addition, Delta managed to conceal the transaction from the tax service, and paid money to the TsUVT only when things got hot: An audit was planned by the Control Directorate of the Administration of the President. Something else: Under the contract, the enterprise undertook to deliver consumer goods worth one-half of the profit generated (it exceeded R11 million). It did not deliver goods for a single ruble. Here is the last detail: It is just that there was no MGP of any kind at the legal address in Krasnodar which it had itself indicated!

Those who "hustled," that is, repaired the helicopters, are still waiting for what they were promised: the 21st Civil Aviation Plant in St. Petersburg, the helicopter production association in Kazan, the aircraft production association in Ulan-Ude, the imeni Mil Moscow Experimental OKB Design Bureau, and others—a total of 11 plants. In their failure to receive goods worth R38.4 million, which were due for their efforts, they suffered a substantial loss. This is how they refer to this in the language of lawyers. However, the trader-general did not come to any harm at all. Moreover, he moved to a superior seat unperturbed, and is now in command of logistics of the Ministry of Defense Air Force.

I had this question on the tip of my tongue: "Actually, why did he ply the waves of such a dubious business?" I was told that an answer would definitely be given. All in good time. The investigation continues.

CIS: POLICY

Rebirth of the Russian Army: The Immediate Prospects

93UM0468A Moscow *MIROVAYA EKONOMIKA I MEZHDUNARODNYYE OTNOSHENIYA* in Russian
No 1, 93 (Signed to press 27 Nov 92) pp 5-16

[Article by Cand Hist Sci Konstantin Eduardovich Sorokin, sector director, Russian Academy of Sciences Europe Institute]

[Text] A year has passed since the Russian president adopted the decision to establish a national army. Events since then confirmed the validity of the decision and refuted the predictions of skeptics who believed that Russia's announcement of its military independence would lead to further isolation of republics of the former USSR and growth of military tension between them. However, there are grounds for considering that the process of establishment of national armed forces will not proceed smoothly, and that most likely it will not fit in the planned temporal and conceptual framework. Evidence of this can be found in the serious disagreements in the Russian leadership regarding matters of military development, and in the inconsistency between the proposed ideas and the country's real possibilities.

The Idea Needs to Ripen...

The issue of Russia's acquisition of military power was raised for the first time at the republic's First Congress of People's Deputies in June 1990. A decision was made then to introduce the post of RSFSR Minister of Defense Without Portfolio into the government. Given the deepening crisis in the USSR, growth of centrifugal tendencies and aggravation of the confrontation between the republics and the central government, it was suggested that the Russian military minister and his small staff should be given administrative functions (assisting the draft, supervising material and equipment supply of the forces, and so on), as well as "oversight" of the Union Defense Ministry and prevention of the army's use to "carry out missions atypical of it" in Russia.¹ Because of the opposition of central authorities, this plan was never realized. Of course the following year witnessed the formation of the State Committee for Defense and Security, which was instructed to participate in the development of unionwide military possible and the plan of military reform. However, this committee did not have any real influence on the "professional" activity of the USSR Ministry of Defense; as the August events demonstrated, it was not able to act politically upon Yezov's department.

After the memorable events of August, a real possibility opened up not just to establish plenipotent bodies of military administration in Russia, but also to take the next logical step—giving them something to administer. However, at this stage Yeltsin's team supported the concept of "unified armed forces" proposed by the new military leaders of the still-surviving USSR. Why they did this is understandable: First, Yeltsin's team understood the military and economic expediency of such a decision; second, it was forced to reckon with the opinion of the overwhelming majority of the officer corps, which gave unanimous backing to the army's indivisibility. Finally, the most important thing—Russia's inevitable domination in such a unified military structure—would have strengthened its position in Gorbachev's "renewed Union" even more, and following the final collapse of the USSR, in the CIS as well.

This position continued to be maintained in formal terms until the beginning of spring 1992: Yeltsin asserted earlier in an interview with KRASNAYA ZVEZDA on 22 February that "the issue of establishing a Russian army is not up for discussion today." But by as early as 16 March he signed an edict forming the national Ministry of Defense. The process of establishing a Russian army was put into motion.

The causes of this turnabout are known: There was the desire of a number of republics to nationalize "their part" of the once unified army, including its nuclear component, quickly and contrary to agreements reached within the framework of the Commonwealth; the impossibility of carrying out the extremely necessary reform of the armed forces in the conditions of growing uncertainty of their future status; the intention of Russia's

leaders, who were expecting sharp criticism from the opposition at the Sixth Congress of People's Deputies, to demonstrate their resolve in defending national interests; their desire to strengthen their position in work on the Treaty of Federation.

Subsequently arising difficulties in implementing the president's initial directive attracted much less attention. For example the number of steps it took to appoint the defense minister was quite unusual (first Yeltsin named himself to the post; then he presented the public with two first deputy ministers—a military one, General P. Grachev, and a civilian one, the scientist A. Kokoshin; later, Grachev was moved into the role of acting minister, and it was not until after that that he became a "full" minister); there was the 2 weeks' delay in announcing the composition of the commission instructed to organize the Ministry, the Army and the Navy; and the almost 2 months' delay in the president's signing of an edict actually establishing the Russian Armed Forces. This is despite the fact that the causes bringing about these "oddities" may have seriously effected the destiny of the Russian Army.

First, there was the opposition between civilian politicians (supported by a group of "independent generals") and the military in regard to the question as to who should have political control over the army. The former asserted that a civilian at the head of the military department could keep the army from entering the political arena as an independent force, and they cited the experience of Western countries. It seemed at first that their point of view would assume the upper hand. But ultimately, under the excuse that the army "would not understand" such an innovation, the military was able to obtain both the defense minister's chair² and all other key posts in the ministry, with a single exception (A. Kokoshin's). Another proposal by the "civilians," who were formally supported by the military—to introduce a significant number of independent authoritative experts into the ministry's composition in order to upgrade the quality of the decisions made—"didn't fly" either.

Second, there was the traditional rivalry between structures of the General Staff and the Ministry of Defense in regard to the distribution of roles in the reforming army, which grew keener beginning in the second half of 1991 and led to the retirement of General V. Lobov (at that time the General Staff demanded total power in the armed forces for itself, leaving the ministry with the purely administrative affairs). Within the framework of the Russian military command the new Ministry of Defense defended its rights, insuring for itself not only administrative but also political functions, and limiting the General Staff to the work for which it was naturally intended—operational leadership of the forces.

Third, there was the rivalry between the branches of the armed forces, and not just for a little bit larger piece of the budget pie. The topic of discussion was their place in the future Russian army, and even survival itself. The

"winner" was the ground forces (assault units are within the composition of the ground forces)—a branch of the armed forces that was facing drastic cuts. Their representatives in the supreme military leadership occupy the posts of the defense minister and almost all of his deputies. Airmen and seamen never were admitted to the highest command positions of the Russian Army. Considering that in its rough form the reform plan validly presupposed accelerated development of aviation and the navy, this "deal of the cards" seems rather strange.

Fourth, there was the struggle between the top echelon of the Main Commissariat of CIS Forces, essentially represented by the Soviet Army highest command level, and the group of commanders of lower rank for the right to take charge over the Russian Army. It appeared at one point that the Main Commissariat would transfer in its entirety to Russian jurisdiction (all the more so because it defended Russian military interests in the first meeting of representatives of CIS republics). However, all of the leadership of the Main Commissariat remained in its former—now less significant—place, while the majority of the staff did in fact go over to Russia—under the leadership of new commanders.

This means that the president was able to surmount numerous conflicts between opposing interests. But in this case it seems that in the overwhelming majority of instances he was unable to achieve balanced compromises. And if we consider that not a single one of the opposing sides was crowded out of the future struggle, both the "ideological" and "material" preconditions for continuing the behind-the-scenes battles, which can seriously complicate the process of Russian military development, obviously still exist.

What We Have Today

The popular assertion that Russia got the largest share of the former Soviet Army is generally valid, but it does require a large number of significant corrections.

On paper, the forces that were transferred to Russian jurisdiction do in fact appear impressive.³ But their combat readiness currently raises doubts. First of all, the Soviet Armed Forces were behind contemporary requirements in relation to many parameters and therefore required serious reconstruction even before their disintegration. But at least they represented a single whole, albeit obsolete. On the other hand the forces Russia got do not comprise a unified military organism. An integrated defensive force grouping has yet to be organized on Russian territory, and the unified infrastructure and command and control system required by them have yet to be created. Moreover the combat equipment stationed in Russia, which was always considered to be a rear area, was basically obsolete. The most contemporary weapons were supplied to the first strategic echelon in Eastern Europe and in western frontier military districts, especially in Belarus and Ukraine. It was through these two republics that forces were subsequently withdrawn from Europe over a long

period of time, including from the excellently outfitted Western grouping in Germany.

We also need to consider that following relocation, the fighting ability of even fabulously equipped units and large units declines, and especially intensively and long-lastingly when they are relocated to places poorly prepared for their reception (which is happening everywhere today). Their fighting ability is also being affected negatively by the crisis in Russian society and the difficult socioeconomic position of the army itself. And finally, the reduced level of combat training,⁴ associated with the shortage of material and financial resources, the loss of a significant share of practice ranges, and obviously the confusion reigning in recent years in doctrinal principles, which necessitated a reexamination of training programs, could not but have an effect on the quality of the Russian forces either.

The general-purpose forces suffered the most from the tumultuous events of recent times. Major V. Lopatin, one of the propagandists of military reform who occupied the post of deputy chairman of the State Defense Committee, even rated the army as unbattleworthy.⁵ (Although it seems that the validity of such a rating depends on the sort of conflict you are measuring the Russian forces up against). The strategic offensive and defensive systems are generally in better shape, but there are problems here as well. Thus, for cost-cutting reasons combat patrols by missile submarines and training flights by strategic bombers were significantly reduced; the packages of Russia's recent peace initiatives have been "locked up" at mobile ICBM bases; a large number of facilities associated with strategic offensive arms were lost,⁶ and "windows" appeared in the air defense system, opening up as a result of the loss of a number of radar stations on the territories of former union republics.

What We Might Have by the Year 2000

It is of course difficult to say that the state of affairs in the military area is generally satisfactory. And it is no surprise that soon after adoption of the decision to organize national armed forces, the question as to what the future army should be like was raised. Everything was clear in the general aspect: smaller in numbers, less expensive, but at the same time more modern and effective. But how is this to be attained? We do not as yet have a single, detailed, legislatively documented plan for development of the armed forces, and obviously one will not soon appear. And statements in this regard by highly placed politicians, military leaders and experts are fragmentary, and not always consistent. Nonetheless, the basic principles suggested as the basis for subsequent development of the Russian Army can be distinguished. By the author's count, there are 13 of them:

1. Drastic reduction of the numerical strength of regular armed forces from the 2.8 million men under Russian jurisdiction as of May 1992 to 2.1 million by 1995 and 1.5 million by 2000. The last figure is obviously based on the idea that a country that spends 6-7 percent of its

gross national product on defense (the proposed level of expenditure) cannot have an army exceeding 1 percent of its population (for Russia that would be 150 million persons).

2. Gradual transition to a combined system of manning the armed forces: on the basis of a draft and voluntary enlistment in the armed services on the basis of a contract. As for whether Russia will ultimately have a totally professional army is not yet clear (only in his first few interviews did P. Grachev talk about such a possibility).

3. Development and improvement of the armed forces reserve, which is to compensate for the reduction of the regular army. In particular, the plan is to establish reserve forces of 1 million men (assigned to large units and units of all branches of the armed forces), and to consider another 1 million persons hired voluntarily by the Ministry of Defense to be "automatically mobilized" in the event of a state of emergency. Were the threat of regional war to occur, this would make it possible to arm 3.5 million men within a short time. And in the event of a world war, maintaining second and third order reserve forces is proposed as well.

4. Rejection of the forward force basing system, withdrawal of groupings on foreign soil back to Russian territory, and organization of defenses along national borders. However, there will be exceptions, since the delay of withdrawal of Russian forces from a number of Transcaucasian and Central Asian republics at the request of local governments could well transform into a permanent situation. Moreover Russian military authorities will more likely have to fight for "basing rights" on the territories of some former union republics (under the auspices of the CIS or on a bilateral basis) in order to insure the operation of vitally important strategic facilities (like radar stations) and to retain bases for the Russian Fleet (in the Baltics).

5. Rejection of a deeply disposed fortress defense along the entire perimeter of the borders, as not corresponding to the spirit of the times and no longer possible in view of high cost (both in material and financial respects and in terms of the forces and resources that would be required). It must be replaced by mobile defense relying on highly mobile units and large units that could be transferred quickly to any region of crisis.

6. Renewal of the administrative, territorial and operational organization of defense. In P. Grachev's opinion today's seven military districts must be reorganized, factoring out another one or two from their composition (Smolensk, which together with the Leningrad and North Caucasian districts could form the first strategic echelon and provide greater security to the capital, and Ural). Later on, the districts should be replaced by territorial commands. And operational commands should be organized for operational command and control of the forces (such structures had been created in the USSR in the early 1980s).

7. Reduction and improvement of the army command and control, including its central administration (possibly, transformation of the commands of the different armed services into Ministry of Defense directorates), with regard for the future structure and missions of the Russian Army. Automation of troop command and control.

8. Accelerated development of high-technology armed services (air force, navy, air defense forces) while significantly reducing and radically reorganizing the ground forces. (The latter should become much "lighter" and more mobile: In Grachev's words, presence of a powerful tank component in them does not correspond to highly dynamic, large-scale operations or local military conflicts⁷).

9. Division of the Russian Army into strategic deterrent forces (SSS) and general-purpose forces (SON). The latter would consist of ground forces, the navy and, initially, the air force and air defense forces, which would become part of the SSS in a later stage.

10. Inclusion, in regional SON groupings, forces in a constant state of readiness that are deployed and capable of repelling local aggression; mobile forces capable of rapid transfer to any threatened sector, and of carrying out combat missions jointly with constant readiness forces in conflicts of moderate intensity; strategic reserves, deployed in a dangerous period (in the course of war) to repel large-scale aggression.⁸

11. Organization of a new type of operational-strategic formations—mobile forces. They must be established on the basis of the principle of rapid deployment of forces, and they should consist of marine airborne formations, ground forces, army aviation, military airlift aviation and so on.

12. Transition from a structure of the ground forces consisting of divisions and regiments to one of corps and brigades in order to increase their controllability and mobility.

13. Reduction of the assortment and quantity of weapons and military equipment manufactured, transition to production of exclusively high-tech military products, and setting right the systems for organizing military scientific research and experimental design work and placing military orders in industry. (Special priority is laid upon strategic arms, command, control and communication systems, space and surface-to-air systems, combat and military transport airplanes, high-precision non-nuclear offensive weapon systems, including ballistic and cruise missiles and integrated reconnaissance and strike systems, remote minelaying systems and other engineering equipment, and a number of other types of weapons and military equipment.)

The plan is to implement all of these principles in three rapidly proceeding stages, and to establish the new army by the year 2000.

Why We Will Most Likely Not Have Any of This

The planned transformations are doubtlessly radical and innovative (for the sake of justice it would still be worth noting that V. Lobov voiced ideas that were in many ways similar during his short tenure as chief of General Staff of the USSR Armed Forces in late 1991). Their successful and creative (with constant regard for the rapidly developing international situation and the new accomplishments of military-technical progress) implementation would doubtlessly promote transformation of forces under Russian jurisdiction into an army that completely meets the highest standards of the beginning of the next century. But most likely such an army will not appear by the planned deadline.

First of all, Russia embarked upon establishment and parallel reorganization of the armed forces without yet having a military doctrine which, in particular, would legislatively document precisely what sort of army it must have in the future and the particular "challenges" it must be prepared to meet. Of course, the unusual nature of the situation requires quick decisions and non-standard approaches. But it is important in this case not to overstep the line of acceptable risk. Otherwise a high price will have to be paid for mistakes both in the direct sense (colossal material resources may be wasted) and in the indirect sense (weakening of the country's military security as a result of unsuccessful reform).

The absence of a universally accepted military doctrine at the initial stage of the reform of military development could also probably be discounted as an allowable risk (on the assumption that the aggregate common sense of all factions of reformers and of all entities undergoing reform would serve as the guide to action), were it not for a number of circumstances.

The first circumstance. The conflicts existing among potential reformers of "corporate interests" (which were discussed at the beginning of the article and which can be a hindrance to unity of action) and, what is no less important, the absence of unity among them in regard to a number of key provisions of the military-technical side of military doctrine.

One of these provisions has to do with determining the potential external "challenges" to Russian security. The point of view exists that in the new, more favorable international situation, the main danger the country faces is from small local conflicts, and that initiation of world or other large-scale wars should not be expected.⁹ But there is another point of view as well. Its proponents believe that the most probable scenario for the future would be growth of tension in relations between the West and Russia as the latter undergoes its rebirth; moreover they feel that an intensification of conflicts could "evoke both various military conflicts and a large-scale war against Russia and the CIS."¹⁰ The difference in appraisals of the risk is extremely significant, because it leads to a different understanding of the principle of

"defensive sufficiency." In the former case, highly effective but small armed forces capable of carrying out a limited range of missions would be sufficient. In the latter, preparations must be made for an entire spectrum of wars (nuclear conflict capable of assuming global proportions; major aggression employing conventional weapons; local wars and conflicts) and a correspondingly "polyfunctional army" must be maintained, one which would contain, in addition to impressive nuclear forces, not only light, mobile but also numerous "heavy" SON formations. The question as to who is right is a topic for separate discussion. For our purposes it would be important to note that the 13 principles of military development named tend more toward establishment of an army of the first type. (The attempt to lay the burden of conducting large-scale operations upon the reserves does not appear very persuasive at the moment.)

The second group of disagreements centers on the means of combat operations—offensive or defensive—for which the armed forces should be established. On one hand the military doctrine has been proclaimed to be totally defensive, and in one of his first public statements in favor of establishing a Russian Army, General K. Kobets, state defense advisor to the Russian Federation, explained: "Russia's defense against non-nuclear attack will most likely be planned without massed blows upon the adversary's population centers..., without transfer of the line of military contact to his territory."¹¹ This interpretation of "defensiveness" is met by sharp objections from Russia's new military leadership. It reminds us that the concept of "pounding the enemy on one's own and not foreign territory" was adopted in the USSR under Gorbachev out of political considerations, and it believes, not without grounds, that this concept did not account for the laws of armed conflict, and predestined the defending side to defeat.

The third fundamental question is that of the use of nuclear arms. B. Yeltsin confirmed the pledge not to use nuclear weapons first (the corresponding principle is also set down in official documents of the CIS); however, the military are demanding that this policy be reexamined.¹² The position is not an indisputable one, and it is characterized by serious pro and con arguments that must be meticulously analyzed. But in the context of this article, the fact itself that the problem exists is the only thing that is important.

Disagreements in relation to the first and second questions mean for practical purposes that we can expect serious debates on the principles of future military development (including on the composition and structure of the armed forces from top down, and their equipment, which can change significantly depending on the final resolution of these questions).

Today, in a time when nuclear weapons are perceived primarily as a political instrument, the third of the disagreements is less associated with the practical aspects of military development (although in principle the historic experience of the USA shows that simply

declaring that general-purpose forces will enjoy "nuclear support" makes it possible to significantly limit their dimensions; moreover my own research of the late 1950s and early 1960s suggests that rather than mobile forces, heavy armored forces would be most suited to a radio-active battlefield, and this could well make untying the first "knots" difficult).

This "conceptual stand-off" may resolved in three ways: Either submission of documents on military doctrine to the armed forces will be delayed until some sort of compromises are found, and from all appearances this delay will be long, if of course dictatorial decisions are not made first; or the inconsistencies between the political and the military-technical sides of the doctrine, with which we are acquainted since soviet times, are compounded by conflicts within the latter and between it and the actual practice of military development; or military development will proceed according to a scenario that is not fully ironed out, such that after final "clarification of the conceptual relationships," some of the things that had already been done will have to be redone.

The second circumstance. The transformations were conceived within organizations of predominantly executive power (chiefly in the Ministry of Defense as well as in the Ministry of Foreign Affairs insofar as disarmament policy is concerned). But as we well know, the points of view of legislators often conflict with what executive structures propose and do. Consequently military doctrine documents could find themselves in limbo for a long time at the level of the armed forces, and/or approved needing so many corrections that things that had already been done will have to be redone.

The third circumstance. Legislative acts regarding doctrine and the reform, which transform expert plans into official policy, may create conflict in politicized armed forces and in particular social groups, and act as a detonator of a social explosion. This is especially true if these laws are interpreted as leading to establishment of a position of weakness with respect to the outer world (at the moment, the efforts to explain and publicize the basic ideas of the reform are not well organized), and if they are unable to ensure adequate social rehabilitation of officers discharged from the army.

Creation and reform of the Russian Army is also complicated by the fact that in addition to the presence of extremely important, still-unsolved problems of military development, there are also a number of inconsistencies in the principles of development of the Russian Armed Forces which do not appear to be raising objections on the part of reformers of different leanings.

Thus, the great emphasis laid on a widely branching and well-trained reserve is theoretically justified, and it corresponds to contemporary world practice, including American. But does it suit us economically, and to what extent does it correspond to the other directions of the planned reform? After all, a large reserve will not in fact provide any significant savings in financial and material

resources. Moreover we are not entirely sure as to how the policy of creating large reserves fits with the intentions of the military leadership to "decisively reduce" the number of large units and units of reduced manning ("regular formations"), on the basis of which, according to the idea, reserves are to deploy in crises or war. Nor is it understandable how the necessary numerical strength of reservists will be maintained in the future if the draft system will be replaced by service based on a contract (it is, after all, the former conscripts that make up today's reserve in the armed forces).

Next, from all appearances the future division of the army into the SSS and SON is planned with the goal of establishing a rigidly defined watershed between forces intended for nuclear and for conventional war, thus avoiding nuclear escalation in a crisis or in a limited military conflict. The idea is not new, and it corresponds in general to present trends in the practice of military development in Western nuclear states. However, it is completely obvious that, for example, small ground forces could hold back and, all the more so, repel even an invasion of limited scale only with the support of aviation and air defense forces—that is, with the assistance of SSS components. And this seriously undermines the initial concept.

Or consider this example. In the opinion of specialists, automation of troop command and control, which is doubtlessly important today, may not result in the hoped-for reduction of the numerical strength of administrative structures. Specialist training centers, automated data exchange systems, computer centers and the like will have to be expanded or established anew in administrations of different levels.¹³

But what is much worse is that conflicts exist between the conceived program of development and reform of the Russian Army and the real situation in the country. I am referring chiefly to the possibilities for paying for restructuring of the armed forces.

"By definition," any radical transformations cost money, and a lot. Therefore when we decide on radical reforms, we must calculate ahead of time what they will cost the state, and whether it will be able to manage such a price. It appears that comprehensive calculations were not carried out (in any case they have not been brought to the public's awareness). This can explain the time shortage, the difficulties of carrying out tasks in the presence of extreme economic, financial, political and social instability and unpredictability, and the incompleteness of the plans for military development. Nonetheless, without preliminary—albeit approximate—estimation of costs in constant prices, it would be difficult and rash to plan major, expensive projects.

Perhaps the sole estimates of any specificity of the financial outlays associated with the forthcoming reform were presented to the public in a statement by General Barynkin, the General Staff's liaison officer to the Russian Federation Armed Forces, on 12 May 1992 (see table).

**Principal State Programs in the Area of Military Security,
1992-2000**

	Billion rubles
1. Troop withdrawal	347.0
2. Additional cost of maintaining servicemen (50 conscripts plus 50 serving on contract) annually	59.0
3. Development and burial of nuclear submarine reactors	100.0
4. Elimination of strategic nuclear arms	23.0
5. Elimination of tactical nuclear arms	150.0
6. Elimination of chemical weapons	60.0
7. Elimination of conventional arms	5.0

Before the century is out, these programs will total over 1.2 billion rubles in 1992 prices, or approximately R130 billion annually above the "usual" military budget. But this of course is far from a complete list of additional expenditures on reform. It is not difficult to note that outlays associated with elimination of old weapons dominate. But in any reform, in addition to a "destructive" part there should also be a "constructive" one. Therefore when we calculate the total cost of the reform, we must also consider outlays on programs that would promote practical implementation of future principles of military development: expansion of military scientific research and experimental design work and implementation of the obtained results in specific models of armament; "shake-up" of the entire structure of the armed forces and defense systems of the country; restructuring of troop command and control at all levels; establishment of a fundamentally new command and control system and a vast infrastructure specially for mobile forces; set-up of new troop training centers and so on.

In addition another item of financing that must be foreseen beforehand is possible unforeseen expenditures. Thus, Army General M. Gareyev, a prominent military specialist and theorist, offered the opinion that with the transition to a brigade system, serious problems will arise in accommodation of units and subunits, since "all barracks and parks in our country are designed for companies and battalions of particular numerical strengths. If these will be separate battalions in brigades, the numerical strength of the company and the battalion, the capacity of barracks and the placement of equipment in parks will become different,"¹⁴ and then we would have to restructure all barrack-park administration.

But on the whole, the total cost of all "constructive" programs will from all appearances be very sizable—both in connection with the appearances of the programs themselves,¹⁵ and in connection with overall growth of prices in the country and the objective, abrupt increases in cost of weapons and military equipment. Most likely the country, which is in a deep and hard-to-cure crisis, will not have the needed money. There isn't enough, after all, even for the respectable maintenance of the military "economy" already in existence:

For several years in succession, military expenditures have been decreasing in real terms (they decreased by 2.5 times since 1990).¹⁶

Transition to production of weapons and military equipment based on the most progressive technologies has once again been brought up among the principles of future military development listed above. But first of all you have to have such technologies (not to mention the fact that their "industrial embodiment" may require reconstruction of all of military production). For the moment, a reasonable "foundation" still exists from former times, though it is very nonuniformly distributed among the armed services and categories of military equipment, and some critically important spheres are severely behind foreign standards. And filling in the gaps in, for example, electronics is not only expensive but also takes a long time, which is why it would be difficult to expect an instantaneous switchover to production of only the most progressive equipment. And in order that this could become possible in the future, we need to take steps right now to surmount the numerous areas of technological backwardness. Until recent time the official Soviet course toward superarmaments was combined in a curious manner with reduction of allocations to military scientific research and experimental design work. It seems as if this policy will have its Russian continuation (the decrease in outlays on scientific research and experimental design work in 1991 prices in comparison with 1989 was, or will be according to the plan: 1990—1.6 percent; 1991—21.4; 1992—16.5; 1993—2.4; 1994—1.4 percent,¹⁷ although what would be logical would be to increase financing of military research.

Finally, there is one other thing that just does not fit with real life. The planned decrease in the army's numerical strength could perhaps ease the personnel issue for a time, but it will not solve it, especially in the long range. It presently consists of four principal problems: weakening of the officer corps (since it is to undergo reduction, this pertains for the moment not to numerical composition but to the fact that more and more young, promising officers are leaving military service; but in the future, a shortage of officers at the junior and middle levels may also arise, inasmuch as an army career is becoming increasingly less attractive to young people), internal interethnic frictions, and progressive reduction of the quantity and deterioration of the "quality" of enlisted servicemen. The first problem could be solved by increasing military allocations and improving the material position of officers. But to solve the other problems, even this hard-to-fulfill condition is not enough.

The decrease in birth rate in Russia and other Slavic republics of the former USSR, which has already been progressing for a rather long time, intensified the shortage of the best educated and trained conscripts; as a consequence the necessary number of first-term servicemen was reached with natives of southern republics. As of today, Russia's "conscript resource" is comprised

of approximately 250,000 persons annually, which is three times less than necessary;¹⁸ moreover it will decrease (for the first time in many decades, Russia's birth rate dropped below the mortality rate). The situation is complicated even more by the high level of persons evading service (their number is especially high in the south of Russia and in the Far East), by the forthcoming introduction of alternative service and by the annually increasing number of persons who make use of various sorts of deferments and who are totally exempt from service due to illness.¹⁹

If these trends continue into the future (there are no doubts that they will), by the year 2000 Russia may not even be able to gather together an army of 1.5 million persons. There are of course ways to solve this problem: start selecting Russian refugees for the armed forces (there certainly will be at least several hundred thousand of them); reach agreement with Central Asian republics to supply local conscripts to the Russian forces;²⁰ lower the health requirements (P. Grachev may have been alluding to such a possibility in his numerous criticisms of his predecessors for liberalism in this issue). But in the future all of these measures will have the effect of reducing the "quality" of conscripts, worsening the moral climate in the army, aggravating interethnic tension in the forces, and of course, they will not be popular in the society (a factor of no small importance, considering the drop in popularity of the new Russian leaders). The radical solution here is to make the transition to a professional, well-paid army, which would hardly be possible for the moment in view of economic reasons; and in the more remote future, to solve the demographic problem on the scale of the entire society. But this would be possible only on the basis of a healthy economy and ecology, and a stable sociopolitical situation.

This entire discussion leads to a disturbing conclusion: In the form and volume in which it is presently conceived, the program for developing and reforming the Russian Armed Forces will more than likely not be fulfilled. Absence of complete clarity in the plans themselves and the uncertainty of subsequent development of events in Russia do not for practical purposes make it possible to dependably predict what will happen as a result of this major experiment in military development and reform. It seems as if reformers will have several pathways by which to make what they desire correspond with what is possible: completely rejecting a number of key provisions of the reform, reexamining the most expensive unilateral pledges in disarmament (no one for example is forcing us to "chop up" tactical nuclear weapons at a forced pace), lengthening the time of the reform (or of certain parts of it) to the end of the first decade of the next century, and finally something that we will obviously be unable to do without for the moment—retaining, in the foreseeable future, significant reliance upon inexpensive nuclear weapons as a means of insuring an acceptable level of military security for the country in the troubled period of military reform.

Footnotes

1. See the interview with B. Yeltsin (KRASNAYA ZVEZDA, 26 June 1990).
2. "...Is this the proper moment in Russia's life for a civilian to take the helm of the Ministry of Defense?" was the question asked of P. Grachev already after his appointment. "Let me say outright that the military would not have understood this." (IZVESTIYA, 1 June 1992).
3. They contain all of the forces on the territory of Russia itself, including strategic offensive and defensive forces; seven military districts; the Northern and Pacific fleets; the Western and Northwestern groups of forces, and the group of Russian forces in the Transcaucasus; the 14th Army in Moldova; a base on the Caspian Sea that went to Russia following division of the Caspian Flotilla; a certain quantity of forces in Central Asia; other large units, units and services of the Soviet Army, predominantly of a strategic nature, stationed on the territory of other CIS states and not within the composition of the Russian Armed Forces; and even a base at Cam Ranh, Vietnam. The Black Sea Fleet is under joint administration with Ukraine.
4. Appealing for the establishment of the Russian Armed Forces at the Sixth Congress of Russian Federation People's Deputies, Marshal Ye. Shaposhnikov admitted that the army engages in its main work—combat and operational training—"only when the opportunity presents itself" (KRASNAYA ZVEZDA, 9 April 1992).
5. KURANTY, 23 May 1992.
6. For example the Missile Design Office imeni Yangel, the largest Higher Military Command Engineering School of Missile Forces, the unique school training driver-mechanics for mobile rocket launchers located in Ukraine; capacities assembling ICBMs in Dnepropetrovsk Oblast, and so on.
7. KRASNAYA ZVEZDA, 1 April 1992.
8. VOYENNAYA MYSL, special edition, July 1992, pp 50, 52, 56-57.
9. See the article by A. Rutskiy in KRASNAYA ZVEZDA, 22 May 1992.
10. See "Voyennaya bezopasnost Rossii. Materialy nauchnoy konferentsii" [Russia's Military Security. Proceedings of a Scientific Conference], Book I, Moscow, VAGSh, 1992, p 157.
11. NEZAVISIMAYA GAZETA, 5 February 1992.
12. See "Voyennaya bezopasnost Rossii," p 66; VOYENNAYA MYSL, special edition, July 1992, p 100.
13. See KRASNAYA ZVEZDA, 6 August 1992.
14. VOYENNAYA MYSL, special edition, July 1992, p 40.

15. For example in creating a modern army we cannot avoid mass purchases of the best expensive armament, because today only 20 percent of Russia's arsenals correspond to modern requirements (KRASNAYA ZVEZDA, 19 August 1992).

16. VOYENNAYA MYSL, special edition, July 1992, p 47.

17. KRASNAYA ZVEZDA, 19 August 1992.

18. KURANTY, 17 May 1992.

19. In Moscow, only 10-12 of 100 potential conscripts are sent to the army. In this case the proportion of persons not called up due to poor health increased from 10 percent in 1989 to 20 percent in 1991-1992 (KRASNAYA ZVEZDA, 9 June 1992).

20. Today 40 percent of privates and NCOs in Russia are natives of southern republics of the former USSR (KRASNAYA ZVEZDA, 1 June 1992).

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Procuracy Official on Aftermath of Sailors' Deaths on Russkiy Island

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[Interview with Aleksandr Kuznetsov, deputy chief of the Main Directorate of the Procuracy of Russia for Supervision of Observance of Laws in the Armed Forces, by Viktor Badurkin; place and date not given: "Job Involving All Hands' on Russkiy Island"]

[Text] Nearly two months have passed since TRUD first told about the tragic deaths of four sailors on Russkiy Island. During this time, the commander of the Pacific Fleet, Admiral Gennadiy Khvatov, has been removed from his position; his assistant, Captain 1st Rank Vladimir Denisenko, has been taken into custody; and five senior crewmen of the training units who were taunting the young sailors have been arrested.

The work of the investigative brigade investigating this criminal case has just started and will take more than one month. Therefore, our conversation with Aleksandr Kuznetsov, deputy chief of the Main Directorate of the Procuracy of Russia for Supervision of Observance of Laws in the Armed Forces, who recently returned from Vladivostok, was only about the preliminary assessments of the serious incident on the island.

[Kuznetsov] What struck me most of all was the attitude of some commanders and chiefs toward the tragedy. It was as if nothing had happened. You summon others in for questioning, and in response: excuse me, I cannot make it; I am meeting (escorting) a commission. It is like they were being invited for tea. Incidentally, about the commissions. Since the investigation has been going on, about 20 of them have visited the island, and only the medical personnel have submitted their results of their

work to the investigative group. This matter even had to be resolved through the Moscow command.

Apparently, they did not think that they could make accusations against someone. Assistant Commander Denisenko was so confident of his impunity that he did not even believe it when they showed him the order for his arrest. And the situation was not much better in the units. At the radar school, for example, they continue to wash the kitchen utensils with cold water, and the commander merely shrugs his shoulders and again vows "to eliminate the deficiencies."

Of all the people with whom I have had the chance to meet and talk, only Admiral Khvatov honestly and like a man admits that he is to blame for the deaths of the sailors.

True, the situation changed after the investigation took a number of decisive steps, right up to the arrest. People have realized that the degree of blame and the measure of responsibility of all officials will be established, regardless of rank.

But for now it is too soon to talk about who specifically is to blame for the tragedy. All the more so since I personally see the causes for what happened not only in negligence of the commanders and chiefs. Lately, a critical situation has taken shape in the Army and Navy with manning subunits. The lads have to do their own job plus another, and sometimes for two or three. Far from every conscript is able to hold up under such a load. And on top of that you have taunting on the part of senior crewmen and other conscripts with more seniority.

Many cannot take this. We found out that some sailors deliberately poisoned themselves with detergent or garbage just to end up in the medical unit and sometimes even the hospital. In a garrison with a terrifying unsanitary situation and the same living conditions, this could not but cause outbreaks of epidemic diseases.

[Badurkin] In the opinion of medical workers, Russkiy Island is too "overpopulated." Sewage and waste water are getting into the water-bearing layers of the soil and by summer may cause another outbreak of an epidemic. Has the question of relocating units to the mainland been raised in connection with this?

[Kuznetsov] This is not the prerogative of the Procuracy. So far, we have no convincing documents to make a recommendation in this regard. You see, an investigator relies on expert assessments of specialists in his work. Now the investigation, with the help of the Ministry of Defense, is conducting an audit and inspection of the activities of all services of the Pacific Fleet connected with the tragedy. I think that after this we will also clarify the responsibility of specific officials. So, we will await the results of the inspection.

[Badurkin] Do you intend to bring charges against anyone before it is finished?

[Kuznetsov] The investigators are not sitting idle. Several more people soon will be charged in this case. For the time being, I cannot say who specifically.

[Badurkin] I heard that Denisenko is appealing to the court that you used excessive measures against him.

[Kuznetsov] Although criminal negligence is an unpremeditated crime, we decided that arrest was warranted in this case.

[Badurkin] You charged him only with negligence? But, after all, the driver of his official vehicle, a sailor, claimed that the captain 1st rank beat him up...

[Kuznetsov] The Vladivostok Garrison Procuracy is looking into that. The driver "unexpectedly" went on a month's leave, so it is too early to talk about assault and battery by the assistant commander.

[Badurkin] A delegation of the Committee of Soldiers' Mothers is in Vladivostok. Have you met with them?

[Kuznetsov] Fathers of soldiers contacted me. We have resolved all the issues. I know from the investigators that the mothers of soldiers and sailors have talked about cases of their children being taunted. They are all being studied carefully now, and steps will be taken if they are confirmed.

[Badurkin] Again, the notorious "dedovshchina" [hazing of new conscripts by conscripts with more seniority] is coming to light as one of the main reasons for the incident. But these are training units, and the senior assigned crewmen themselves experienced the "charms" only a few months ago. Aleksandr Anatolyevich, what do you believe is the cause for such a metamorphosis in their conscience?

[Kuznetsov] I am confident that the main thing here is the tolerance of the command. Six months ago, three criminal cases were brought for cases of taunting at that same radar school. But soon they were all dropped. Today we can only guess about the scale of the concealment of what has been flourishing on the island. The senior crewmen themselves say that if the guilty parties would have been punished, the tragedy might not have happened. At least not in the way it happened.

[Badurkin] Russkiy Island is one of dozens scattered throughout the territory of the Pacific Fleet, and is the closest to the mainland and the headquarters. I am afraid that the situation is no less alarming in the remote garrisons...

[Kuznetsov] We are now engaged in making a procuracy inspection on nearly all islands where there are military units. I think that its results will soon be known.

Army Civilian Work Administration Chief on New Civilian Pay Scale

93UM0527B Moscow KRSNAYA ZVEZDA
in Russian 20 Apr 93 p 1

[Interview with Col Viktor Rudik: "Wages in Accordance With the Wage Scale"]

[Text] As KRSNAYA ZVEZDA has already reported, the order of the Ministry of Defense of the Russian Federation No 130 introduced the new terms of wages of civilian personnel of the Armed Forces of Russian on the basis of a uniform wage scale.

By reader request, the Chief of the Work and Wage Administration of Civilian Personnel of the Armed Forces of the Russian Federation Col Viktor RUDIK will describe the innovation in more detail.

[Question] Viktor Antonovich, why in general was the wage scale necessary? Does it conform to the Codex of Labor Laws of the Russian Federation?

[Rudik] Recently the traditional wage policy has proven to be unsound. In particular there has been a significant gap in the pay of workers of the food and non-production sphere. So the decree of the Government of the Russian Federation No 785 appeared, with the goal of organizing the rates of wages by branches, and establishing sound correlations of the pay of workers depending on complexity and qualification, based on use of the uniform wage scale (ETS).

The uniform scale for grouping and categorized wages of blue- and white-collar workers was developed. It covers all budget-paid workers and provides for differentiation of pay in 10 categories.

[Question] But still, are there any specific features of the use of the uniform wage scale in the Armed Forces?

[Rudik] There are. When the terms of wages were developed, allowance was made for the specific features of activity of the workers in different branches. For example, in accordance with government decree No 2 of 3 January 1993, the size of the wage rates of civilian personnel of the Armed Forces can be raised up to 50 percent in comparison with those in effect in the domestic economy. Rates were raised first of all for blue-collar workers—fitters, tool makers, broad-profile lathe operators, repairmen of unique equipment, divers, topographers and geodesists, specialists in regional electrical networks and certain others.

A maximal raise in rates of 50 percent is being introduced for all blue-collar workers of the first ETS category, and also for separate categories of physicians, and for medium and junior medical personnel. The wage rates for all workers assigned the second ETS category, and also for drivers and repairmen of automotive and railroad lines and communal structures, and repair and construction workers were raised by 40 percent. It is

impossible to list them all, but the point of the differentiated increase in wage rates is that it is necessary somehow to change the unfavorable cadre situation in certain services. For example, in some garrisons of the Far East and the Transbaykal, the communal networks have essentially been left without blue-collar workers. So in the variant with introduction of the ETS for blue-collar workers the increase is more substantial, and in a number of cases even higher than for specialists—engineers, economists, and the directors of structural subunits.

[Question] Will this solve the problem? Many letters to the editor are a cry of despair: How can we live now on 6-8 thousand rubles? We hear this from workers of the military commissariats and military reception facilities and representatives of a number of shortage professions in the army.

[Rudik] Unfortunately the Armed Forces still has many low-paying categories of workers whose pay does not assure the necessary living standard, in particular in regions of the country such as the Krasnoyarsk kray, the Kamchatka, Magadan, Murmansk, Sakhalin and Tyumen oblasts, the Sakh Republic (Yakutia) and the Kola Republic.

For instance, in November 1992 in the Krasnoyarsk kray the average earnings of the workers of the gas industry were more than 83 thousand rubles, in the coal industry almost 43 thousand rubles; in the Magadan oblast in ferrous metallurgy they were 72 thousand rubles, in the coal industry 61 thousand rubles; in the Sakh Republic (Yakutia) in power engineering they were 57 thousand rubles. The price level was formed in accordance with them. Under these conditions, a wage of 7-10 thousand rubles a month, which many blue- and white-collar workers of the army and navy living and working in these regions earned, appears quite paltry.

Under the present economic conditions it is hard to compete with self-financing enterprises, but the Ministry of Defense has now been given a number of advantages by the government of the Russian Federation in comparison with the budget-paid branches. In addition to what I already said, in agreement with the Ministry of Labor of Russia we will be able to determine the procedures, conditions and amounts of incentive payments and material assistance, providing for these purposes up to six monthly wage funds per year, and to determine the amounts of supplements, compensatory payments, and raises in rates and wages associated with specific features of the work of military units. I think that all this will make it possible to generally eliminate the urgency of the situation.

[Question] What about in those regions which you already mentioned?

[Rudik] Additional measures have been taken there. In particular, skewing of regional wage coefficients has been eliminated. For example, in the Nizhneilinsk and Bratsk rayons of the Irkutsk oblast, the coefficient was 1.3 for

civilian personnel of the Armed Forces, while for lumber workers, say, it was 1.4. The picture was similar in the Okhotsk rayon of the Kabarovsk kray and other areas. Now the Ministry of Defense has the right to use regional coefficients within the limits of those set for the corresponding territories, including by the local organs of authority.

[Question] What will the pay raise accomplish?

[Rudik] On average, with the introduction of the ETS pay will be increased from the start of the year by a factor of 2 or 3 in comparison with the average pay of November 1992. Most workers have already received this increase as a result of the preliminary raise of wage rates and wages by 50 percent in December 1992 and in January and February 1993 by 100 percent (Order of the Minister of Defense of the Russian Federation No 277, 1992). In real terms, when all is said and done the increase in pay will be by a factor of 3 to 5 for those workers whose wages are raised in accordance with the ETS. There are not so many of them, by the way.

At the same time, as of 1 April 1993 the amount of the monthly wage rate (wage) of the first category of the uniform wage scale will increase to 4,500 rubles, i.e. the pay of workers paid on this basis will again be raised by a factor of 2, and the rates (wages) in all the other categories of this scale will go up automatically.

[Question] Are there any specific features in wages of workers of the central and district apparatus?

[Rudik] Wages based on the ETS do not apply to the organs of state administration, including the central apparatus and the apparatus of districts, fleets, armies and flotillas. The wage terms of these workers are determined by the decree of the Presidium of the Supreme Soviet and the government of the Russian Federation "On ordering the wages of workers of organs of representative and executive authority," and for the organs of military administration, by the decree of the Ministry of Labor of the Russian Federation of 11 February 1993 No 24 and the corresponding order of the Ministry of Defense of the Russian Federation No 129 dated 8 March of this year.

The provisions of the order of the Ministry of Defense of the Russian Federation No 130 with respect to procedures for calculating and approving the wage funds, payment of a percentage increment for time in service and regional coefficients, and material incentives to workers apply in full to civilian personnel of the organs of military administration, with the allocation of up to 6 monthly wage funds per year for these purposes.

[Question] Viktor Antonovich, how would you comment on this letter. A. Smirnov from Omsk writes: before when an army officer received 350 rubles, the [army]

employee received 150 rubles. In his opinion the ratio was reasonable, but now the gap has increased sharply.

[Rudik] I wouldn't say that. The comparison should be made correctly. If we compare for example the salary of a platoon leader, company commander and regiment commander respectively with the pay of a sector chief, shop chief and chief of a budget-paid enterprise of the Ministry of Defense of the Russian Federation, it turns out that the salary of the regiment commander (along with the pay for military rank) is just 3.6 percent higher than that of the chief of the budget-paid enterprise of the first group (50.4 thousand rubles and 48.6 thousand rubles), that of the company commander is 20.4 percent higher than that of the shop chief (36.4 thousand rubles and 30.2 thousand rubles), and that of the platoon leader is 45.4 percent higher than that of the sector chief (29.2 thousand rubles and 20.1 thousand rubles). The gap is not so wide.

This has also been furthered by the increase in the amount of the percentage increment for time in service. Now it is equal to that of the officer for time in service and amounts to (in percentages of the wage rates for main position), for continuous work of more than a year, 5 percent; more than 2 years, 10 percent; more than 3 years, 15 percent, more than 5 years, 20 percent; more than 10 years, 25 percent; more than 15 years, 30 percent, and more than 20 years, 40 percent.

[Question] Many readers have asked about the procedures for assignment and establishment of categories. Who is involved in this?

[Rudik] For the blue-collar professions, the former procedure of awarding categories from 1 through 8, corresponding to the wage category of the ETS, is retained. They are awarded by qualification commissions in accordance with the requirements of the uniform job and wage rates classification manual of blue-collar workers (ETKS). The exception is those blue-collar professions for which the rates of the 9th and 10th categories of the ETS can be established. These categories are not awarded, but are established by the corresponding commanders and chiefs for highly qualified blue-collar workers working at important and responsible tasks (a special list has been approved) and serve as the basis for their wages in accordance with the rates of these categories in the ETS. The establishment of the 9th and 10th wage categories are not necessarily permanent. In addition, the categories are introduced for those blue-collar professions for which salaries were earlier established.

For blue-collar workers, the introduction of the ETS as a rule does not require regrouping. Their new wage is established in accordance with the already assigned category. In all other positions, the wage categories are established by commanders (chiefs) in accordance with the qualification demands which are cited in the order of the Minister of Defense of the Russian Federation. In the

course of certification of directors, specialists and technical executors, the category is established by them with allowance for the recommendation of the certification commission.

[Question] In this regard, can one speak of an expansion of the rights of unit commanders in providing material incentive for conscientious work?

[Rudik] Certainly the rights of commanders are expanded. From now on they will annually approve the material incentive and material assistance fund. How will these monies be used? First of all as a reward for the basic results of labor: monthly and quarterly to pay incentive supplements (for performance of especially important and urgent tasks), and for rewards based on the results of the year, the so-called thirteenth paycheck.

This provision is also new: with the resources of this fund one can make payments to workers for food, pay the cost of travel by municipal transport and make other payments of a social nature provided for by collective contract. This contract is the legal foundation regulating all questions of material incentive. Bonuses, supplements, awards and material assistance paid to the individual worker are unlimited, but the total sum of payments over the year to all workers should not exceed six monthly wage funds per year. The use for these purposes of resources saved in the wage fund is not permitted.

Considering the high level of inflation, which is exacerbating social tension in some labor collectives, there are high hopes for efficient and cohesive work of the finance organs and labor and wage organs in rapidly making the final recalculations of wages on the basis of the ETS.

Finance Chief on Recent Raise for Budget-Paid Servicemen

93UM0527A Moscow KRASNAYA ZVEZDA in Russian
21 Apr 93 p 1

[Article by Ivan Ivanyuk: "New Salaries Starting in the Second Quarter"]

[Text] As the editors were told by the Chief of the Main Administration of the Military Budget and Financing of the Ministry of Defense of the Russian Federation, Lt Gen Vasilii Vorobyev, the governmental decree of the Russian Federation No 340 has been signed, significantly raising the pay of service members in accordance with the raise in wages of budget-paid workers.

In particular, for officer personnel and cadets (with the exception of cadets who are army or navy warrant officers and extended service members) and also for conscript service members, salaries have been raised by a factor of 1.9. The salaries of army and navy warrant officers, extended service members, female service members and contract service members have also been raised. They have been set in accordance with the approved 9-category scale. Here the first category has been made to

accord with the requirements of the Law on the Status of Service Members. The salaries of service members for military rank, and the amounts and procedures for the payment of a one-time lump award have also been made to accord with the standards provided for by this law.

As a result of the raise, contract service members will receive the largest increase. The minimal monetary maintenance, not counting food and clothing, will be 32-33 thousand rubles upon entry into service. In comparison with what the conscript soldier will receive, this is a considerable sum and should serve as a good incentive for those who want to become professionals. In addition, when the contract is signed these service members will be paid a lump-sum grant in the amount of two months monetary maintenance (without allowance for increments for service in remote locales, in regions with severe climate conditions or other increases).

New service incentives have also appeared for the cadets of higher educational institutions. In the first and second years, instead of 2,000 rubles they will receive 3,800, and in the third and subsequent years, 7,600 rubles, while those who sign a contract in the training period will be paid in accordance with the wage scale of the professionals.

The government decree also provided for recalculating pensions assigned to service members for time in service and for disability, and pensions for loss of breadwinner for their families, on the basis of the monetary maintenance of active-duty service members, which was increased on 1 April.

The Minister of Defense of the Russian Federation has signed and sent to the military units a telegram regarding the payment monetary maintenance in the new amounts starting on 1 April of this year. At the same time a telegram was sent to the command and control organs with the order of the Minister of Defense No 205 dated 19 April 1993 regarding the doubling of the amount of the first wage category in accordance with the uniform wage scale, which is now 4,500 rubles, as of 1 April for civilian personnel of military units, institutions, VUZ, and budget-paid enterprises and organizations of the Ministry of Defense of the Russian Federation.

Starting at the same time, the salaries of civilian employees in the central apparatus, the apparatus of the military districts, fleets, and flotillas, and also of military procuracies and military courts will be raised by 90 percent.

Russian, Belarusian, Ukrainian Army Reforms Compared

93UM0550A Moscow *NOVOYE VREMYA* in Russian
No 19, May 93 (Signed to press 4 May 93) pp 18-19

[Article by Arkadiy Moshes: "Three Armies—Three Reforms"]

[Text] They are trying to comprehend in Russia, Belarus, and Ukraine how many soldiers are required, who is the enemy, and what arms these soldiers should be provided.

National armed forces have long been recognized as an attribute of statehood. The experience of civil war in Russia once again confirmed that the independence of a state cannot be guaranteed if either the building of an army is rejected (Ukrainian People's Republic) or reliance is made on foreign "bayonets" (states of the Transcaucasus). Yet looking at it another way, the Russian Red Army, cemented in a concept, turned out during that period to be capable of accomplishing not only military missions (fighting off aggression), but political tasks as well (restoring to a significant degree Russia's prerevolutionary boundaries).

The Legacy

The first to chart a course of creating its own army was Ukraine, whose parliament adopted resolutions on 24 August and 22 October 1991—i.e., "during the lifetime" of the USSR—on transferring forces stationed in the republic to its jurisdiction. Belarus followed the example of its neighbor in September of that same year, declaring the need to establish its own national forces. The final line was drawn when that country's Supreme Soviet adopted the Law "On the Armed Forces of the Belarus Republic."

Russia vacillated longer than the others, which is only natural considering that it was carrying a different historical burden and international responsibility, brought about by its existing and potential world status. Finally, having exhausted all possibilities of building a unified or combined armed forces of the CIS, Russia too embarked upon the path of "military independence." On 16 March 1992, a presidential edict was signed establishing the Russian Ministry of Defense, and on 7 May—an edict on creation of the Armed Forces of the Russian Federation.

Russia inherited from the USSR seven military districts; the Northern, Pacific, and Black Sea (presently under joint control with Ukraine) Fleets, and a significant portion of the Baltic Fleet, a base in the Caspian and a base in Cam Ranh (Vietnam); the Western, North-western, and Transcaucasian Groups of Forces; the 14th Army in Moldova and certain forces in other CIS republics. However, the combat readiness and degree of provision with equipment of the Belarus, Carpathian, Odessa, and Kiev Military Districts were greater than for the mobilization districts of Russia proper. On the whole, the units and major formations acquired by Russia cannot, in their present condition, become the foundation of a modern armed forces. This means that the nature and extent of transformations which Russia must accomplish are just as radical as those facing its neighboring republics, which are building armies all over again.

From One Uniform...

The problems facing Russia, Ukraine, and Belarus in the sphere of military policy are similar to a great degree. The similarity lies primarily in the tremendous volume of armed forces reductions caused both by limits prescribed by the Treaty on Conventional Armed Forces in Europe and by the capacities of the national economies.

Personnel strength of the Russian Army must be reduced from 2.8 million in 1992 to 2.1 million by 1995, and must not exceed the level of 1.5 million by the year 2000. The Ukrainian Army awaits an almost threefold strength reduction—from 650,000 in 1992 to 200,000-250,000 in 1995. Belarusian forces will be reduced from 180,000 to 87,000 over the same time frame.

Against the background of these reductions, the three states will have to effect a complete review of all foundations of military structure: They will have to develop military doctrines and strategy, draw up and adopt regulations, change organizational structures... Incidentally, a military doctrine exists only in Belarus. The Ukrainian parliament has twice postponed this matter, while Russia—the successor to the USSR—must be formally considered, prior to adoption of its own military doctrine, as being constrained in this regard by the famous declaration of the Political Consultative Committee of the Warsaw Pact Organization made in 1987—a document which does not contain any military sections at all.

The absence at this initial stage of a fulcrum of military structure is exacerbated by the well-known problems of lack of social organization in the Army and diminished social status of military servicemen, which has been leading to internal destabilization of the Army—an exceedingly dangerous phenomenon in the context of "The Army—The State" and "The Army—Society." And although the main sets of "military laws" in the republics have already been adopted, the onslaught of problems is only attenuated, not eliminated.

Russia's neighbors have promptly and efficiently developed detailed concepts of military reform which properly allow them to distinguish reform from the constant process of renewal of the military entity. New quantitative parameters have been developed for the armed forces, as well as time frames for achieving them. Recruitment procedures have been developed. A new army structure is being introduced both in general (more smoothly in Belarus, less so in Ukraine, which created a new type of armed force out of its air forces and air defense forces—airspace defense forces), and in the personnel-strength and organizational scheme (transition from "Soviet" division-regimental structure to a new, brigade-corps structure). There was a rejection of military districts—the Belarus and Kiev Military Districts were eliminated, and operational commands were established based on the Odessa and Carpathian Military Districts, enabling reduction of the command and control apparatus.

Observers assess the establishment of the Armed Forces of Ukraine as the one and only success of the V. Fokin government, attested to by K. Morozov's retention in the post of minister of defense in the new government. Belarus, the most highly militarized state in Europe one year ago (one military serviceman for every 43 inhabitants), has already carried out almost half its planned reductions.

While Russia, where so much is said about the need to create mobile forces, continues to be devoted to the old, cumbersome structure requiring dozens of echelons to deploy just a single division, and is holding on to the system of military districts—which in no way satisfies all contemporary requirements and was first introduced in 1864 by Minister of War D. Milyutin under Aleksandr II. The concept of territorial and operational commands capable of replacing the military districts has been much discussed, but never implemented.

The first conscription in the Armed Forces of Ukraine comprised 103.6 percent of the planning figure. Placement opportunities opening up for officers intensified the striving of many to return to their homeland (13,000 individuals would like to return to Belarus, 30,000—to Ukraine, and opportunities to return are sharply limited at present). And so, no recruitment problem appears on the agenda.

In Russia, where conscript resources are short the amount necessary by a factor of three and a trend toward reduction is seen, and where personnel shortages with respect to the existing strength authorization have already exceeded all critical levels, they are attempting as before to explain away their problems through a lack of social consciousness on the part of conscripts and their parents.

Unequal Sides of the Triangle

The Ukrainian and Belarusian versions of military reform are similar in outward appearance with respect to ideology and measures, but important differences are detected upon closer examination. Both republics have declared a status of neutrality and both are unable to adhere to this completely. But the poles of military-political gravitation of these countries have different signs. Whereas it is natural for Belarus, with its role in the CIS, to drift slowly towards a system of collective security or union with Russia, Ukraine is itself striving to become the military center of Eastern Europe, and this is entirely within its power. To strengthen such status, Ukraine intends to acquire nuclear weapons and the Black Sea Fleet.

Belarus has no enemy. Ukraine does, but it is a potential enemy—that state which makes territorial claims against it. During an examination of military doctrine which took place in October of last year, many deputies openly demanded that this country be named.

It is understandable that different countries look differently upon military ties with Russia. For Belarus, which

produces only eight varieties of fuels, oils, and lubricants of the 250 necessary for the armed forces and which has not yet manufactured a single variety of weapon in final form, military cooperation with Russia is a mandatory condition for the accomplishment of military reform. Ukraine comprised a third of the military-industrial complex of the USSR, and the fact that all small arms are delivered from Russia has been incapable of putting a halt to national military and economic romanticism. The result: Russia's refusal in fact to use Ukrainian weapons and a threefold drop in production in the military-industrial complex of the republic. If the fissure between Russia and Ukraine is enlarged, then the national army will apparently be compelled to shift from the tank to the horse, but this circumstance has not been properly recognized as yet.

Daring "cavalry raids" of the Ukrainian Ministry of Defense on the then still undivided military property of the Soviet Union contrast sharply with the process of painstaking negotiations taking place between Belarus and Russia—resulting in the movement to the former of practically all the units and large formations it requested.

The steps taken by Ukraine in "thrusting forward" its independence in military matters, calculated to achieve outward effect, differ from the careful, well thought-out policy of Belarus. It is entirely symbolic that Ukraine began the building of its Armed Forces by having its troops swear the military oath, as if afraid of being late in dividing up the pie. While Belarus concluded its first stage of reform with the oath. Both courses are probably legitimate, but whereas the first is irritating, the second serves as an example of civilized policy in the military sphere.

But it must be acknowledged all the same that all three armies and all three versions of reform suffer to one degree or another from the same illness. Unity of military strategy and military reform has not become a fundamental principle in the period of reforms.

It is on strategy, long-term and all-encompassing, that both the structure and the deployment of military forces depend. Obviously, in order to answer questions as to **where** troops must be, **what kind** of troops and **how many** there must be, one must first form a clear picture of **to what end** they are serving, i.e., the choice of means of neutralizing the threat must come after a detailed assessment of the threat itself.

Changing Strategies or a Strategy of Changes

If Russian forces are to remain in Tajikistan, what are the reasons? If Russia requires mobile forces, where specifically can they be used? Without belittling the role of the military, it would seem that an examination of the given theorems must take place within the context of broad public discussion, in order to secure the support of society for measures being taken. Incidentally, this is precisely what was done in Ukraine with respect to the question of nuclear weapons. It is considered unpatriotic today to even discuss repudiation of these weapons.

Where did the figure 1.5 million come from as the strength of Russia's Armed Forces by the year 2000? This is most likely a reflection of the view generally recognized in the world that a country can maintain an army which numbers one percent of its population without causing detriment to its economy. But perhaps Russia needs more? Or less, considering the low probability of a simultaneous attack from various directions against a nuclear power?

This is not just Russia's illness. The structure of the ground forces of Belarus (future total strength of which will come to approximately 50,000) will include an airborne assault division and airborne assault brigade. Belarus does not intend to create rapid deployment forces, i.e., a quest for missions for these units lies ahead. Ukraine, whose relations with Poland are almost those of an ally, maintains on its borders shock troops which at one time comprised part of the USSR strategic second echelon, while—sedition as this may sound—the exacerbation of contradictions with Russia demands a military stance.

All this is a consequence of the absence of a strategy of reforms based on recognition of national interests. If such a strategy existed, it is possible the recruitment problem would also be resolved—why maintain motorized rifle divisions with their tank and artillery regiments where brigades would be sufficient? These things are clearer to the military, of course, but it seems that even they would find it advantageous not to have officer-commanded guards, but combat capable units instead, though in lesser quantities.

The Russian Army is one year old. A year lost as far as reforms are concerned—which fact is evident even in comparison with Ukraine and Belarus. There must not be any more waiting with regard to reform.

CIS: GROUND TROOPS

IMR-2M Engineer Obstacle Clearing Vehicle

93UM0514A Moscow *TEKHNIKA I VOORUZHENIYE*
in Russian Mar 93 (Signed to press 3 Jan 93) pp 48-C3

[Article by S. Romadin: "Engineer Obstacle Clearing Vehicle IMR-2M"]

[Text] The vehicle represents a modernized version of the IMR-2, from which they have removed a set of launchers of a mineclearing linear charge (in connection with the appearance of the special self-propelled launcher "Meteorit") and strengthened the armor protection of the hydraulic equipment. The crane equipment was supplemented by a scraper-ripper. The technical specifications and productivity of the engineering equipment remained as before. The vehicle was produced from May 1987 through July 1990 and is known as an intermediate or transitional model of the first version of the IMR-2M (provisionally IMR-2M1).

At the present time, industry is producing a second version of the IMR-2M (provisionally IMR-2M2), whose powerful multifunctional bulldozer equipment and minesweeping system are successfully supplemented by a universal tool (URO) that replaced the traditional tongs. The URO makes it possible to take and hold even objects whose dimensions are comparable to those of a match box (radioactive fragments, for example). It has the possibilities of a manipulator and is capable of working as a grapple, a straight shovel and back hoe, a scraper, and a ripper.

As of today, the IMR-2M2 represents the most advanced and promising engineer obstacle clearing vehicle. It can perform all kinds of work under the conditions of radioactive contamination of a site, intense contamination of the atmosphere with aggressive gases, vapors, and toxic substances, smoke and dust, and the immediate effects of fire. Its dependability has been confirmed in the course of the elimination of the consequences of the most immense disasters of our time and under the combat conditions of Afghanistan. The IMR-2M2 is accessible not only to the military sphere but also to the civilian sector, where utilization of its universal possibilities guarantees great benefits. It is equally effective as an engineer obstacle clearing vehicle and as an emergency-rescue vehicle.

The list of operations performed by the IMR-2M2 is long. In particular, they include the making of a way through medium-rugged terrain, scrub forest, virgin snow, and hillsides, the pulling of stumps, the felling of trees, and the clearing of paths through timber and rock barriers as well as minefields and nonexplosive obstacles. With its help it is possible to clear away obstructions in population centers and damaged buildings and structures. The vehicle can dig out trenches, foundation pits, and buried equipment and shelters, fill in holes, trenches, and gullies, and prepare ditches, escarpments, levees, and passages across antitank ditches and escarpments. The IMR-2M2 makes it possible to put in place bridge sections and to construct approaches and exits at fords. It is expedient to use it to perform work on soils of categories one through four, in quarries, and in open works, to fight forest and peat fires, and to carry out lifting operations, evacuations, and the towing of damaged equipment.

Tactical-Technical Specifications of the Engineer Obstacle Clearing Vehicle (Emergency-Rescue Vehicle) IMR-2M

Railroad gauge	02-T
Mass, kg	
IMR-2M1	44,500
IMR-2M2	44,300
Maximum power of the B-84 engine, kilowatts (horsepower)	618 (840)
Maximum speed (in reverse), km/hour	59 (3.9)

Distance endurance, km/hour	up to 500
Volume of hydraulic system, liters	500
Discharge of the pumping unit, liters/minute	456
Working air pressure in the crew compartment, pascal (mm of water column)	250-300 (25-35)
Means of communication	radio station R-173, tank intercom R-174
Speed while working with bulldozer equipment, km/hour	8-12
Rate of clearing paths, km/hour	
Timber obstacles	0.34-0.35
Rock obstacles	0.3-0.35
Rate of clearing column routes, km/hour	5-10
Maximum pulling force, kN [expansion not given] (kilogauss)	275 (275,000)
Cultivation of the earth with bulldozer equipment (filling in of trenches, construction of approaches), meters/hour	230-300
Digging of trenches 1.1 to 1.3 meters deep using URO on soils of categories one through four, meters/hour	8-10
Digging of foundation pits using URO (to a depth of 2.5 meters) while performing rescue work on soils of categories one through four, cubic meters/hour	12-16
Construction of approaches using URO on slopes 3-3.5 meters high, cubic meters/hour	40-60
Loading (unloading) of loosened materials (earth) using URO, cubic meters/hour	16-20
Lifting capacity of crane boom, kN (kilogauss)	—
IMR-2M1 with full extension of crane boom 8.835 meters	20 (2,000)
IMR-2M2 with extension of crane boom 8.435 meters	20 (2,000)
Maximum steepness of slope permitting reliable work of the vehicle, degrees	25
Trunk diameter of felled tree, cm	more than 40
Speed of mine sweeping, km/hour	
Antitank pressure mines	6-15
Antibottom pin mines	no more than 7

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'Mayak' Land Navigation System

93UM0512B Moscow *TEKHNIKA I VOORUZHENIYE* in Russian Mar 93 (Signed to press 3 Jan 93) p 33

[Unattributed article: "Navigation Equipment for Land Facilities"]

[Text] Land navigation equipment is an indispensable help for specialists operating wheeled and tracked machinery under the conditions of impassable roads and unfamiliar territory. The equipment consists of a computing system made up of a coordinator, a road sensor, a course indicator, and a "Mayak" course system (a gyro

course indicator, a control console, and a current converter). Its design ensures the uninterrupted automatic generation and display of navigation information:

- the coordinates (X,Y) of the location of the vehicle with a discreteness of 1 or 10 meters and an accuracy of not less than 1.3 percent;
- the direction of movement of the vehicle;
- the distance to the designated point and the direction of movement to it with an accuracy of no less than 6 degrees.

In addition, depending on the state of the route, the equipment makes it possible to make a course correction for skidding or slippage within the range of -13 to +10 percent of the distance traveled.

Specifications: Feed voltage, volts: 27 plus or minus 10 percent, Power consumption, watts: no more than 60, Mass, kg: no more than 41.

Address for inquiries: 410071, g. Saratov, ul. Astrakhan-skaya, 45, Saratovskiy agregatnyy zavod Telex: 241113 ZENIT Telephones: (845-2) 25-89-36; 25-88-54; 25-89-44.

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Strela-10M3 Self-Propelled Air Defense System

93UM0512A Moscow *TEKHNIKA I VOORUZHENIYE*
in Russian Mar 93 (signed to press 3 Jan 93) pp 14-15

[Unattributed article: "Combat Vehicle of System 'Strela-10M3'"]

[Text] The antiaircraft missile system "Strela-10M3," being the latest modification of the system "Strela-10M2" (known in the NATO countries under the designation SA-13), is intended for the immediate protection of forces against air-attack systems. It is capable of destroying low-flying air targets, including aircraft, helicopters, cruise missiles, and remotely piloted vehicles. It is found in the armament of the CIS and also is delivered to a number of countries of Europe, Asia, Africa, and Latin America. The simplicity of the design of the basic equipment of the system and the ease and dependability of its operation have given it a good reputation among military specialists. "Strela-10M3" has high combat effectiveness, is well protected against organized optical interference, and has expanded possibilities in comparison with its prototype to combat small targets.

The system includes a combat vehicle (9A35M3 with a passive radio direction finder or 9A34M3 without it) with missiles and support equipment (a monitoring and verification vehicle, a vehicle for servicing and maintenance, and a unit for external electric power). The passive operating mode of the radio direction finder reduces the probability of detection of the system and precludes the possibility of the effect of enemy antiradar missiles. The combat vehicles are equipped for the

reception and realization of a target designation, identification of the nationality of a target, assessment of the launch zone and accomplishment of missile launches and also are equipped with communication and navigation systems. Up-to-date electronic equipment makes it possible to utilize the system autonomously as well as in the mode of centralized target designation. Its possibilities are greatly enhanced in the case of the latter.

The combat vehicle exists in a module version: a launcher with guidance equipment is located on a revolving turret, which makes it possible to mount it on any means of transport with a load capacity of more than 3 tonnes. The folding launcher (such a design has not been applied in any known antiaircraft missile system in the world) greatly reduces the dimensions of the vehicle in the field position and improves its cross-country capability. The combat load is made up of eight missiles. Four are suspended on the tipping part of the launcher. Since their center of mass is located on the axis of oscillation, the equilibrium of the system is guaranteed regardless of the number of missiles on it. Another four missiles are located in the mobile inventory in the rear section. The two-channel (infrared and photocontrast) missile homing head ensures the destruction of targets in the head-on and overtaking courses even with the presence of natural and organized optical interference. Practice has shown that the destructive effectiveness of the system is rather great even under the conditions of the enemy's use of radio interference and decoys in the radar band. It should be noted that the most nearly analogous system in terms of its specifications (the American antiaircraft missile system "Chaparral") operates only on an infrared channel, which determines its capability of destroying targets only in overtaking phases.

The high-speed electromechanical aiming and guidance drives of the combat vehicle make it possible to maneuver rapidly with fire and to launch simultaneously against two targets moving in different directions. The unique solution applied in the design of the guidance system permits the automatic turning of the launcher following the movement of the target after its lock-on by the missile homing head. Provision is made for the possibility of delivering fire from a spot as well as in movement with a brief halt.

The multipurpose caterpillar prime mover MT-LB with highly economical and ecologically clean diesel is used as the base for the "Strela-10M3" system. Thanks to the low specific pressure on the ground, the vehicle can move on roads with a low carrying capacity, including across swamps, virgin snow, and sandy areas, and can also overcome water obstacles by floating. The running gear with independent torsion suspension and hydraulic shock absorbers provides for good maneuverability and very smooth travel, which has a favorable influence on the accuracy of fire and the longevity of the launcher.

The developer and manufacturing enterprise is continually working to modernize the "Strela-10M3" system for

the purpose of improving its tactical and technical specifications.

Main Characteristics	
Target destruction range, meters	up to 5,000
Flight altitude of target being destroyed, meters	25 to 3,000
Method of guidance of self-guided missiles by two channels: photocontrast channel or infrared channel	by principle "Fire—Forget"
Method of detection and combat use	"See-Fire"
Total missiles, in containers	8
Method of firing	from a deployed position, from a brief halt
Crew, persons	3
Temperature interval of combat use	from -50 degrees C to 50 degrees C
Mass, kg	12,300
Maximum speed, km/h	61.5
Cruising range, km	500
Speed on water, km/h	5 to 6
Launcher angles of laying	from -5 degrees up to 80 degrees
—in elevation	
—azimuth	unlimited
Launcher guidance speed, degrees/second	0.3 to 50
—in elevation	
—in azimuth	0.3 to 100

For additional information, with proposals, you can address:

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MI-28 Helicopter Described

93UM0460A Moscow KRASNAYA ZVEZDA in Russian 4 Mar 93 p 2

[Article by Lt-Col Valentin Rudenko: "Mi-28: Rotary-Winged Tank Killer"]

[Text] They say a bird in the hand is worth two in the bush. If this popular wisdom is applied to equipment, the designers of the OKB [Experimental Design Bureau] imeni M.L. Mil have no cause for worry about the future of their new combat helicopter, the Mi-28. Although this aircraft has twice lost in competition with the one-seater

combat helicopter of the OKB imeni N.I. Kamov, the Ka-50, the Mil workers do not consider themselves beaten.

From the start the Mi-28 was thought up and developed as a two-seater combat helicopter. The creators of this aircraft, general designer of the OKB Mark Vaynberg, and designers Andrey Yermakov, Vladimir Stakolnikov, Mikhail Korotkevich and many others were convinced that for the foreseeable future two-seater helicopters will retain their advantages over the battlefield. The attainments of the Kamov workers deserve respect. The idea of a one-seater helicopter is extremely tempting, but fully realizing it without harming combat effectiveness will be possible only when there is a qualitatively new level of flight automation.

The Mi-28 made its first flight in December of 1982. It was taken up by Honored Test Pilot and Hero of the Soviet Union Gurgen Karapetyan and Honored Test-Navigator Viktor Tsygankov. The new aircraft immediately showed itself to be a powerful combat asset for search and destruction of different combat equipment, particularly tanks and IFVs. Specialists believe that the Mi-28 surpasses foreign combat helicopters in combat effectiveness, including the widely known American An-64 "Apache."

The helicopter is armed with a 30-mm cannon, analogous to that mounted on infantry fighting vehicles. It has two rates of fire, 800 and 300 rounds per minute. The rounds are standardized with ground-fired rounds. In addition to the cannon, the Mi-28 arsenal includes the "Shturm" or "Ataka" air-to-surface guided missile and four pods of unguided 80- or 130-mm rockets. Containers with grenade launchers, 23-mm cannon, or bombs up to 500 kg can be secured to the four suspension points. The helicopter is equipped with a mine-layer.

Search, identification and guidance to target are implemented with the help of a combined optical sighting unit. It has two optical channels and one optical-television channel (with 3x, 13x, and 20x magnification). It is important to note that the sight and cannon operate synchronously. Their azimuthal mobility is + or - 110 degrees, vertical mobility +13 degrees to -40 degrees. The navigator-operator in the forward cockpit uses the guided weapons. The crew commander flies the helicopter at maximally low altitude (approximately 5 to 15 meters) and fires the unguided weapons. If necessary the pilot can also control the sight and cannon. There is a special helmet-mounted target designation system for this purpose. It turns the cannon in the direction in which the pilot is looking.

An important advantage of the Mi-28 is its high combat survivability. No helicopter in the world can rival it in this index. It is the only helicopter which has a completely armored pilot's cockpit. The cockpit windows will sustain a direct hit from a bullet of up to 12.7-mm caliber, and also from shell fragments. The Mi-28 makes

extensive use of screening of vital elements by less vital ones. For example, the engines are separated so that the main reduction gear fits between them, and the main and tail rotors are made completely from composite materials which show high residual strength when damaged, and many of the helicopter's aggregates and systems are redundant.

The aircraft uses an original and reliable system of passive crew protection, which assures pilot survival should an emergency situation occur at low or extremely low altitude, in an ground impact at up to 12 m/sec. It is based on a landing gear which is not retracted in flight, with a two-tire, shock-absorbing strut, and on an energy-absorbing seat. If the emergency situation arises at high altitude, the pilots can parachute from the aircraft. Here the wings of the helicopter are jettisoned. Since the Mi-28 has a special technical compartment which easily accommodates two persons, it can be used for battlefield evacuation of a crew from a downed helicopter.

The helicopter was demonstrated at international air shows in Bourges and Redhill and was duly appreciated by foreign specialists. One eloquent testimony to this is the fact that after the air show, offers to purchase the Mi-28 came in from a number of foreign companies. At present preparation is under way for serial production of the Mi-28 at the Rostov aviation plant. The first serial helicopter will come off the line at the end of this year.

Basic Specifications and Performance Characteristics

Crew, men:	2
Takeoff mass, kg:	10,400
Engines, TVZ-117 VM, h.p.:	2 x 2,200
Ceiling, m	
—static:	3,500
—dynamic:	5,800
Range of speeds, km/h:	0-300
Cruising speed, km/h:	270
Flight range, km:	440

Armament: 30-mm cannon, guided antitank missiles, bombs, unguided rockets

Tracked Minelayer GMZ-3 Described

93UM0475B Moscow KRASNAYA ZVEZDA
in Russian 19 Mar 93 p 2

[Article by KRASNAYA ZVEZDA Correspondent Colonel Vitaliy Moroz, under the rubric: "Arsenal": "In the Line—a Minelayer"]

[Text] The creation of minefields manually is a labor-intensive matter that requires quite a bit of effort and time. Practically all armies are concerned about the development of equipment that permits carrying out rapid minelaying, including remote minelaying—on enemy territory. We all know about missile, artillery and helicopter minelaying systems. The fleet of ground-based

minelayers is also quite varied. Our engineer troops have a modern and effective mechanized minelaying system. Today, we are talking about the GMZ-3 tracked minelayer.

This vehicle is designed for mechanized placement of antitank mines with contact or proximity fuzes into the ground (snow) with camouflage or on the earth's surface. The previous model of the GMZ-2 minelayer was not designed for the employment of mines with proximity (in this case actuating under the influence of the target's magnetic field) fuzes.

The mines that make up the GMZ-3's combat load are placed in canisters. During minelaying, at a previously designated interval they are placed on a lowering transporter and end up in a small ditch that is formed by a plow. Then a special organ camouflages the mines. This is the GMZ's advantage over those systems that carry out minelaying without subsequent camouflage.

The GMZ-3 has bullet-proof armor. It is equipped with a minelaying control system, tank navigation instruments, a radio transceiver, and emplacement digging equipment. Its weaponry is a 7.62 mm PKT machinegun with a combat load of 3,000 rounds.

During the development of a multi-row mine line, the minelayers follow parallel courses with an offset to the right or to the left.

Primary Tactical-Technical Specifications for the GMZ-3 Tracked Minelayer

Type of mines laid	TM-57, TM-62M, TM-62PS with contact or proximity fuzes
Minelayer combat load, in mines	208
Loading time in minutes	60
Minelayer step in meters	5 X 10
Length of single-row mine field installed, in meters	
from contact mines	1,000
from proximity mines	2,000
Speed while laying mines, in kilometers per hour	
on the surface of the ground	up to 16
in the ground with camouflage	up to 6
in the snow	up to 10
Thickness of camouflage layer in millimeters	
of ground	60-120
of snow	up to 500
Weight of the combat load, in tonnes	28.5
Crew, men	3 (commander, driver-mechanic, operator)

Lt-Gen Kazantsev on First Use of Computers in Tactical Exercise

93UM0524A Moscow KRASNAYA ZVEZDA in Russian
21 April 93 p 2

[Article by Aleksandr DAVIDYUK: "Computers Instead of Plywood Boards"]

[Text] KRASNAYA ZVEZDA has already reported that in the Transbaykal Military District, a program of tactical command and control was practiced with the help of computers during a special tactical drill with regimental commanders. The chief of staff of the district, Lt Gen Viktor KAZANTSEV, described some results of this drill to our correspondent.

[Davidyuk] Viktor Germanovich, to my knowledge the program of commander's training did not envision the conduct of gaming drills. How did the idea of organizing such a drill come about?

[Kazantsev] The authorship does not belong to us, but in general the use of computers in training military cadres today is a novelty except for in our army. I first became acquainted with it during an assembly in the Moscow Military District, where they demonstrated something similar. I was convinced that the use of computer technology would open broad opportunities for training commanders in the tactics of the modern combined-arms battle. This is especially relevant given the urgent personnel shortage and the meager budget appropriations, when the conduct of expensive exercises with live fire is practically impossible. How can we prevent a reduction in the level of professional training of officers? The capital district is one thing, where one can take advantage of the potential of the academies and higher educational institutions, but the picture is quite different in a district like the Transbaykal. A Gordian knot of problems immediately arises: how will we buy modern computers, who will operate them, where will we get the right programs?

[Davidyuk] And how did you cut through this knot?

[Kazantsev] It was no use waiting for assistance, so we counted solely on our own resources and on the capabilities which we have at the given moment. We set about financing like this. To purchase the computers we used some of the money allocated for range equipment. It was spent on computers instead of on plywood boards for targets. Of course some training was disrupted, for which we took responsibility. But you see, there is no other solution at present. We now have three of the latest-model computers at headquarters, and nine computers in two tactical formations. Of course this is very little, but a point of reference has appeared.

There was also a snag with the cadres. Strange as it may seem, the academies do not send the district experienced computer programmers who might be able to operate and service the computer equipment professionally. The whole thing depends on the enthusiasm of two or three

officers. They work on the computers in their free time. It is a paradox that these positions are not provided for by the establishment at the training centers, so we do not have the opportunity to train these same contractors on site. We certainly cannot put off solving this problem.

Now about the computer programs. I sent Major Aleksandr Krasavin to Moscow. We had heard that the Frunze Academy had something in the department for command and control and staff service that we urgently needed to perform computer gaming. They responded with understanding to our request, and we got a program which is provisionally named "Kombat." It is organically blended in with the system of commander's training, and makes it possible to improve decision-making skills. But then, you witnessed the drill and could see that for yourself.

[Davidyuk] Viktor Germanovich, as I saw it several commanders at the regimental level had serious difficulties working with the new equipment, and you must admit that one computer to twenty or thirty men is not much.

[Kazantsev] That is so. More than forty percent of the unit commanders went to the armies of nearby countries. At times the newly appointed ones lack experience and education. But I think you could not help but notice the desire with which the officers worked during the special tactical drill. The men greatly miss combat training, and we are striving to set up a full-blooded training process particularly with officer personnel. Given the low manning level of the units, this is very relevant. We are searching for new forms and recalling old ones that had proven themselves. Incidentally, during preparation for the drill mentioned above, the idea arose of creating terrain models in each regiment in order to improve the effectiveness of practice of the tactical missions. In many units they are already made and have been electrified and furnished with communications equipment. Later on we will connect computers to them.

[Davidyuk] What advantages does the use of computers bring?

[Kazantsev] Within the framework of a single tactical problem, the trainees can enhance the level of their knowledge and skills, and they have the opportunity to clearly see the results of the adopted decision in space and time, while the drill director can analyze the actions of the trainees. In addition, you can print out the combat documents in mere seconds. Before they took several hours.

In short, it is time to seriously realize that the future of the Russian army lies with computer technology, and the rate of introduction of progressive training systems in the line units will depend precisely on us.

Specifications of 2S3M 152mm SP Howitzer 'Akatsiya'

93UM0475C Moscow KRASNAYA ZVEZDA
in Russian 2 Apr 93 p 2

[Article by KRASNAYA ZVEZDA Correspondent Colonel Vitaliy Moroz, under the rubric: "Arsenal": "Akatsiya" That Smells of Gunpowder"]

[Text] During the period of the Great Patriotic War self-propelled artillery carried out practically those same missions as tanks and in peacetime were crowded out of the military arsenal by tanks.

The second birth of self-propelled artillery came in the beginning of the 1970's in our army. Training practice and the specific features of local military conflicts convinced us of the need for their return into the ranks—in a new look and, primarily, a new role. Today self-propelled artillery, as front line soldiers called them, have the same missions as towed howitzers, cannons and mortars—purely artillery missions. Their advantages are unquestioned: higher mobility and independent operation, better equipped with communications and fire control systems, mechanization and automation of crew work, providing the crew with armor protection... Self-propelled artillery systems, especially the latest ones, brought artillerymen quite a bit closer to the realization of the principle-dream: "a round has been fired—target destroyed".

The names of flowers were attached to self-propelled guns that were designed and entered series production in the first half of the 1970's: "Gvozdika" [Clove], "Akatsiya" [Acacia], "Giatsint" [Hyacinth], "Tyulpan" [Tulip], and "Pion" [Peone]. Today we are acquainting our readers with the capabilities of the "Akatsiya" 2S3 152 mm self-propelled howitzer which was manufactured for nearly 18 years and has a weighty place in the Russian Army's artillery fleet.

This system is designed to arm artillery regiments of tank and motorized rifle divisions. A special tracked chassis (item 303) was developed for the howitzer that demonstrated high operating qualities. Later the Giatsint 2S5 152-mm long-range self-propelled cannon that equips artillery brigades and divisions was mounted on that same chassis. The welded armored hull provides bullet-proof and shrapnel-proof protection of the crew and internal equipment. Bulldozer equipment for entrenching is built into the nose section. The power plant is a multi-fuel engine with water cooling, fuel injection, and reheating. Its output (520 horsepower) ensures a rational correlation with the gun's combat weight.

"Akatsiya" is air-transportable and the AN-22 can carry two of the guns.

The gun was twice modernized in the process of production. In 1975, the design of the mechanized ammunition loader was improved which permitted them to increase

the carried combat load by six projectiles (the model of the renewed 2S3M howitzer).

"Akatsiya" has been adapted for ammunition supply from the ground. In this case, the crew is increased by two men. The stored ammunition is fed through the turret's side hatch. Indeed this process is not mechanized.

In 1987, the weapon's model was changed once again: 2S3M1. This signified equipping the self-propelled gun with a device to receive and display command information and with a new gunsight.

Besides conventional munitions, "Akatsiya" can use projectiles with Krasnopol laser guidance. The artillery observer who is located several kilometers from the enemy position, designates the needed target with a laser target designator. The projectile that is in flight adjusts its course when it receives the correction. The probability of target destruction substantially increases.

The "Msta" 2S19 152 mm self-propelled howitzer, which we already talked about in the Arsenal rubric, is replacing "Akatsiya". Without hesitation, we can assign "Akatsiya's" successor to the most modern and effective artillery systems in the world.

Primary Tactical-Technical Specifications for the "Akatsiya" 2S3M 152 mm Self-propelled Howitzer

Maximum firing range of a high-explosive fragmentation round, in meters	17,600
Rate of fire, in projectiles per minute	3-4
Angles of guidance, in degrees	
along the vertical	-4 +60
along the horizontal	360
Crew, men	4
Carried combat load	
projectiles for the howitzer	46
7.62 mm rounds for the PKT machinegun	1,500
Speed in kilometers per hour	up to 60
Range based upon fuel, in kilometers	500
Weight in kilograms	
—of the gun in travel mode	27,500
—of a projectile with a high-explosive fragmentation charge	60
—of a projectile	43.5

CIS: AIR, AIR DEFENSE FORCES

Air Defense Chief of Staff Sinitsyn on Force Challenges

93UM0487C Moscow KRASNAYA ZVEZDA
in Russian 10 Apr 93 p 3

[Interview with Air Defense Chief of Staff Viktor Pavlovich Sinitsyn by KRASNAYA ZVEZDA Correspondent Aleksandr Ivanov, under the rubric: "Timely Topic": "Russia's Shield Must Be Reliable"]

[Text] The state border that has developed today is lit up by a thin light-blue line on the screens of the monitors in the office of the Chief of the Russian Air Defense Troops Main Staff, Colonel-General Viktor Sinitsyn. Surrounding it are a multitude of moving dots that remind you of fireflies—they designate aircraft that are in the airspace. Ours and other states' airspace.

Viktor Pavlovich indicates the blips of two American carrier-based reconnaissance aircraft that are moving parallel to the border in our submarines' patrol area in the Sea of Okhotsk and tells us what alert-duty personnel and equipment have been activated to escort them. A report on a violation of Russia's state border via the TsKP [Central Command Post] duty general's selector unexpectedly interrupts our conversation. A Polish helicopter has penetrated deep into our territory in Kaliningrad Oblast... In fact, our interview began with this episode that occurred on the eve of Air Defense Troops Day.

[Sinitsyn] Journalists, depending on the region about which they are writing, at times love to use the epithet "tranquil border". Unfortunately, as you yourself were just able to become convinced, a tranquil border and tranquil alert duty practically do not exist for PVO [Air Defense] Troops combat crews. Of course, provocative violations of airspace have become significantly fewer in recent years. The former tension does not exist. Accidental violations, as by that same Polish helicopter, now more frequently occur. However, fighter aviation always takes off when aircraft have penetrated our airspace or when there is a clear threat of a foreign military aircraft crossing the border. And if that is, say, a missile platform that is capable of carrying nuclear weapons, all steps will be taken to terminate its flight. Transport, passenger, or sports aircraft—we will render assistance to exit our airspace.

Unfortunately, the new geographic conditions in which Russia has currently found itself have created a series of additional problems for performing alert duty for the Air Defense Troops. For example, the failure to adopt to this day the Law on the Russian Federation State Border that defines the state boundaries and the procedures for guarding and crossing them, including through the air, concerns us and quite substantially. Alas, we have not yet equipped air corridors in all directions as international standards require. Air traffic procedures in Russia and in nearby foreign countries have not been defined.

[Ivanov] But as far as I know, the air defense system, like the PVO Troops, have recently undergone substantial changes. What are they and how is that reflected in service?

[Sinitsyn] Actually, very serious changes have occurred in both a structural and in an organizational context. Quite a few troops that are located outside Russia's borders are being reduced, withdrawn, or transferred to the jurisdiction of the republics. As a result, a portion of our state border has turned out to be poorly covered by

PVO systems. This is first of all on the western and southern axes where we neighbor the republics of the Baltic, the Transcaucasus and Central Asia. The specifications of the radar coverage area do not totally correspond to today's requirements in those sectors. However, the PVO Troops command is seeking methods and techniques to strengthen the defense of the air border on troubled sectors. A radar coverage area and fighter aircraft cover have been created. The relocation of units is occurring and combat training is being structured in a different way... Finally, the troops have shifted to performing combat alert duty in accordance with the demands of the Russian Federation Minister of Defense's new order which sets forth specific tasks for PVO and defines the procedures for carrying them out.

Right now it is already obvious: we cannot have a continuous zone of antiaircraft weapon-surface-to-air missile fire along the entire border. Therefore, we are shifting to a PVO Troops target grouping [ob"ektovaya gruppirovka] where only the most important economic and administrative-political centers and troop formations have direct cover. The creation of a Commander-in-Chief's troops reserve which could be used on any sector during a necessary period is advisable under these conditions.

[Ivanov] Yes, the withdrawal of troops from nearby foreign countries is a prolonged and quite difficult process to which our editorial mail attests. What is being done in order so that it occurs less painfully?

[Sinitsyn] First of all, we are attempting, as far as our capabilities permit, to find optimal ways to resolve the problem. PVO units are not being disbanded at their permanent deployment locations but are being withdrawn to Russian territory. And they aren't being withdrawn to a bare base facility or to partially constructed garrisons but to those garrisons where there is housing for families and barracks for soldiers.

The construction of housing, positions, and garrisons is being conducted in parallel in the operational assigned areas of the units being withdrawn.

[Ivanov] And yet in some locations families of servicemen and personnel have found themselves in a very difficult socio-every life situation.

[Sinitsyn] The situation is especially difficult for those people who were still serving in the Transcaucasus and republics of Central Asia until recently. The fate of each such officer and warrant officer is being resolved individually by personnel organs. Those who served the prescribed time periods are being released into the reserve. Those who have to serve longer are being assigned to the commanders of armies on Russian territory.

Unfortunately there are also those who have not been provided housing. This problem can't be resolved in a very short period of time. The Ministry of Defense has

allocated the required resources for the rapid construction and creation of housing. For example, they have been authorized to purchase apartments from civilian organizations. And that is appropriate. The problem can't be resolved in any other way. There are more than 26,000 families of servicemen without apartments in our troops alone. We are building 4,000-5,000 apartments per year in the troops.

Social problems engender cadre problems. The number of officers and warrant officers who desire to be released into the reserve has increased. And junior officers are submitting their requests. How do we retain them in the army? In my opinion, the primary way is to increase their material vested interest.

[Ivanov] Idex-93, the international exhibition of weaponry and equipment that occurred in February in the UAE [United Arab Emirates], demonstrated that foreign specialists displayed a great deal of interest in the S-300 and TsMU-1 ZRS [surface-to-air missile systems]. But today, how much is industry satisfying our own troops' requirements?

[Sinitsyn] That question is very complicated for us. This year, the military budget has not yet been approved and there are no resources for the purchase of the required weaponry. Therefore, equipment is entering the inventory in significantly reduced quantities. But we are not losing hope. We assume that in the future our ZRV [surface-to-air missile troops] will be armed only with modern S-300 complexes and SU-27's and MIG-31's will remain in the aircraft inventory.

There is another side of the coin. Right now industry needs to survive. And this is only possible if our weaponry wins the market.

[Ivanov] While speaking recently to the Russian Federation Supreme Soviet, PVO Troops Commander-in-Chief Colonel-General V. Prudnikov cited a quite alarming statistic. Specifically, he stressed that right now there are actually 6-8 men in surface-to-air missile battalions instead of the authorized 50-60 soldiers. Is it possible with such a low manning percentage to maintain combat readiness at the proper level and to carry out the assigned training-combat missions?

[Sinitsyn] Manning in the troops has on average reached a critical level. And the situation in subunits will deteriorate even further while taking into account that we will immediately release two conscriptions into the reserve in the fall.

For now we see the solution in the creation of officer crews. Work in subunits is being structured in such a way that each combat subunit will be able to carry out the combat mission exclusively by officers if necessary.

We are resolving the problem by recruiting for service on contract. But that process is being impeded by the absence of the appropriate law.

[Ivanov] In the PVO Troops, very many officers and warrant officers are worried about the issue of their future. What do they have in mind? This is already the second year that rumors on the reorganization of the troops as a service of the Armed Forces are stubbornly circulating and, as far as I know, they are groundless. All of this must have an impact on the mood of personnel... What could you tell me on that score?

[Sinitsyn] I personally think that logic and common sense must prevail and our service of the Armed Forces will be preserved. I will support my argument with a simple comparison.

Since most ancient times, soldiers have mandatorily had a sword—to inflict a blow—and a shield—to protect themselves in combat. So, I will say in refraction to today: the sword is the RVSN [Strategic Missile Troops] and the shield is the PVO Troops. In the process, our troops are the only service that is capable of deterring and repelling aggression which, based on the experience of the latest local wars, can begin with the use of powerful aircraft bombing strikes and precision-guided missile weapons both from space and from the air. And if we weaken the strength of the air defense shield today or delete it as an unnecessary object, than it will be quite difficult to handle the assigned missions.

Under current conditions as never before, it is important to maintain a single air defense system for the security of the state. Because its dismemberment will result in a drastic reduction of the troops' combat capabilities. This has already been calculated and proven more than once by specialists and scientists.

In conclusion, I would like to congratulate all those who are related to the Air Defense Troops on our professional holiday, to thank them for their labor and to wish them all the best.

MIG-27 Technical Data Given

93UM0475A Moscow KRASNAYA ZVEZDA in Russian
26 Mar 93 p 2

[Article by KRASNAYA ZVEZDA Correspondent Colonel Aleksandr Andryushkov, under the rubric: "Arsenal": "The MIG-27: Strike Fighter-Bomber"]

[Text] The MIG-27—a low altitude fighter-bomber—is a development of the MIG-23BN frontal aviation fighter-bomber with a variable sweep wing. There has already been an article about the "23" in the Arsenal rubric. It's understandable that these aircraft are quite a bit similar in external appearance. They are differentiated, which is noticeable at first glance, by the configuration of the nose section of the fuselage. A fighter-bomber, in contrast to a fighter, has no need to fly at high supersonic speeds. Therefore, the MIG-27 does not have a complex variable air intake system which significantly simplified and alleviated the fuselage design.

The MIG-27 is designed primarily to conduct strikes against small mobile and fixed targets, including hardened targets, in the enemy rear area and also for ground attack activities over the battle field. It is capable of conducting air-to-air combat.

Honored Test Pilot Valeriy Menitskiy performed the first flight in this type of aircraft that was built in 1974. The series production MIG-27 was produced at Irkutsk and Ulan-Ude. A total of 560 MIG-27 and 200 MIG-27K aircraft were built.

The MIG-27 has high combat survivability thanks to the installation of armored plates along the sides of the cockpit and by blowing neutral gases into the fuel tanks. Better bomb sighting-navigation equipment than on the MIG-23BN has been installed on this aircraft. It received further development in the modified MIG-27K. The aircraft is equipped with an automated defense complex that includes an active jammer, a radar illumination warning device and decoy and passive jamming (chaff) dispensers.

The MIG-27 is well armed. Based on its fire power, it perhaps has no equals in its class. A built-in six-barreled 30-mm cannon is installed on the aircraft. Various variations of both guided (with laser, television, and radio command guidance systems to combat enemy radar and for dog fights) and also unguided rockets can be accommodated on its hard points. The MIG-27 can carry up to 22 50 kg or 100 kg bombs, up to nine 250 kg bombs, up to eight 500 kg bombs, and also guided bombs. The fighter-bomber has expendable cluster bombs dispensers, concrete-piercing munitions with booster rockets, and armor piercing bombs in its arsenal. Small bombs can be hung on its numerous bomb carriers.

The aircraft can be equipped with equipment for aerial refueling.

The MIG-27 is famous on the world market. This fighter-bomber (MIG-27M) is produced by HAL [Hindustan Aeronautics] in India at the Nasik aircraft plant under the name Bahadur (Valiant) and by the middle 1990's will be the basis of the Indian Air Force's strike aviation.

The MIG-27 was successfully employed during the Iran-Iraq War.

Primary Tactical-Technical Data for the MIG-27	
Wingspan in meters	7.8/14.0
Aircraft length in meters	16.7
Maximum take-off weight in kilograms	20,700
Engine type	TRDF R-29B-300
Maximum speed in kilometers per hour	1,350
Service ceiling in meters	17,000

Take-off speed in kilometers per hour	315
Landing speed in kilometers per hour	270
Length of take-off run in meters	850-950
Length of landing run in meters	850

Technical Specifications of AN-22 Turboprop Transport

93UM0537A Moscow KRASNAYA ZVEZDA in Russian
4 May 93 p 2

[Article by Major Sergey Babichev: "The An-22 'Antey' Is Going for Another Record"]

[Text] The Design Bureau imeni O.K. Antonov has many creative successes to its credit, but the An-22 "Antey" turboprop transport occupies a special place in the row of honor.

It was created to accomplish a strategic—taking into account the huge territories and hard-to-reach areas of the North and Far East—task of moving heavy, large cargo over great distances. The fact that this task was accomplished brilliantly is evidenced, in particular, by the international recognition of our country's top ranking in creating large-capacity aircraft at the 26th Paris Air and Space Show in 1965.

The words "for the first time" can be used at least three times with respect to the An-22. An aircraft with a takeoff weight of 250 tonnes was created for the first time. A fuselage diameter of 6 meters for a transport was achieved for the first time, which was another step in world aircraft building in creating large wide-bodied aircraft. And, finally, in 1965, an absolute world record was set in the "Antey" which held up for 16 years: cargo weighing 100.44 tonnes was taken to an altitude of 7848 meters.

The An-22's configuration is a high-wing monoplane. The tail section of the fuselage with a hatch and a large-size ramp and a low floor configuration provide convenient conditions for loading and unloading bulky cargo. Four 2.5-tonne telfers, lightweight removable rollers equipment, and cargo tie-downs, which comprise the onboard transport equipment, facilitate and speed up loading and unloading, regardless of the availability of airfield equipment.

Good performance characteristics and the ability to operate from dirt runways have made it possible to use the An-22 not only in military transport aviation but also in the national economy—for delivering bulky cargo and equipment to remote and hard-to-reach areas.

The aircraft is very profitable: the cost of transporting cargo on the "Antey" is 35-40 percent below the cost of transporting it by other aircraft. This is achieved due to the large capacity and flight range, the economic efficiency of the engines, and the self-sufficiency of the An-22.

Basic Performance Characteristics	
Maximum takeoff weight, kg	250,000
Engines:	
Type	NK-12MA turboprop
Horsepower	4 x 11,032
Effective horsepower	4 x 15,000
Maximum payload, kg	80,000
Flight range with maximum payload, kg	5,000
Maximum flight range, km	11,000
Best flight altitude, meters	3,000...10,000
Cruising speed, km/hr TAS	560
Cargo compartment dimensions, meters	
length (with ramp)	33
width	4.4
height	4.4
Landing run, meters	1,100...1,300
Takeoff run, meters	800

The "Antey" continues to operate today. Due to the considerable reduction in budget appropriations for maintaining the Air Force, and Military Transport Aviation in particular, questions of financing programs for creating new military transport aircraft are being resolved with difficulty. Here, too, the slogger "Antey" is setting another record—longevity.

CIS: NAVAL FORCES

Pacific Fleet Aide Calls Prosecution Political

93UM0479B Moscow KOMMERSANT-DAILY
in Russian 2 Apr 93 p 14

[Article by KOMMERSANT-DAILY Correspondent Lev Borisov, under the rubric: "Purges in the Pacific Ocean Fleet": "Vladimir Denisenko's Lawyer Considers the Case to be Political"]

[Text] Yesterday Yevgeniy Sukhoverkhov, lawyer for arrested Assistant to the Former Pacific Ocean Fleet Commander Vladimir Denisenko, told journalists that his client does not consider himself to be guilty of the charge that has been filed against him (negligence that entailed serious consequences). During an interrogation, he said that the tragic events on Russkiy Island occurred during his absence. KOMMERSANT-DAILY has been writing about this since 12 March.

Yevgeniy Sukhoverkhov reported that when conscripts began to arrive on Russkiy Island, Denisenko's mother died. He left to go to the funeral. At that same time, his younger brother died. But, having learned about what had occurred at Russkiy Island, Denisenko interrupted his leave and flew back from Sevastopol to Vladivostok. Judging by his lawyer's words, during the year that his

client was in this position he did everything possible on his part to ensure the normal vital functioning for units on Russkiy Island. Mr. Sukhoverkhov thinks that there was no need to arrest Denisenko. Furthermore, Denisenko and others were removed from their positions and submitted for release into the reserve by a minister of defense order. Mr. Denisenko's lawyer thinks that procuracy workers current activities are sooner calculated on the public and are clearly political but are in no way criminal-legal in nature. The lawyer appealed to a court to verify the legality and grounds for employing incarceration under guard as preventive punishment.

Tomorrow KOMMERSANT-DAILY will return to the events in the Pacific Ocean Fleet.

CIS: REAR SERVICES, SUPPORT ISSUES

Decree on Benefits for Servicemen Handling Chemical Weapons

93UM0531A Moscow KRASNAYA ZVEZDA in Russian
27 Apr 93 p 2

[Decree No 352 of the Council of Ministers-Government of the Russian Federation of 19 April 1993: "On Benefits for Servicemen and Civilian Personnel of the Armed Forces of the Russian Federation Engaged in Performing Work for the Storage, Servicing and Maintenance, and Transporting of Chemical Weapons and Irritants"]

[Text] To enhance the material incentives of servicemen and civilian personnel of the Armed Forces of the Russian Federation engaged in performing and supporting work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants, the Council of Ministers-Government of the Russian Federation decrees:

1. To establish a monthly bonus for servicemen (other than those called up to perform military service) and civilian personnel of the Armed Forces of the Russian Federation:

—directly engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants—in the amount of 20 percent of their salary (wage rates);

—engaged in supporting this work—in the amount of 15 percent of their salary (wage rates).

For servicemen called up to perform military service who are directly engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants, salaries are increased by 50 percent, and for those engaged in supporting this work—by 30 percent.

Payment of these bonuses is to be made based on a listing of positions (occupations) of servicemen and civilian personnel of the Armed Forces of the Russian Federation directly engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants and a listing of positions (occupations) of servicemen and civilians of the Armed Forces of the Russian Federation engaged in supporting work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants, approved by the minister of defense of the Russian Federation or his first deputy by agreement with the Ministry of Labor of the Russian Federation.

2. To provide treatment and prophylactic nourishment, at a norm according to the attachment, for civilian personnel of the Armed Forces of the Russian Federation directly engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants.

Servicemen directly engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants are provided additional food products in accordance with subparagraph "m" of Note 2 to norm No 1, approved by Decree No 479-28 of the Government of the Russian Federation of 10 July 1992.

The minister of defense of the Russian Federation, in coordination with the Ministry of Labor of the Russian Federation, shall determine the list of jobs in which servicemen are provided additional food products and civilian personnel are provided treatment and prophylactic nourishment.

3. To establish an additional 6 days of paid leave for servicemen and 6 paid work days for civilian personnel directly engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants.

4. To provide priority travel authorizations to treatment and health institutions, given the appropriate statements, for servicemen and civilian personnel engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants.

5. To provide for the free issuance of special clothing, special footwear, and other individual protective gear to servicemen and civilian personnel engaged in performing work for the storage, servicing and maintenance, and transporting of chemical weapons and irritants.

The Ministry of Labor of the Russian Federation, on presentation of the Ministry of Defense of the Russian Federation, shall determine the norms for issuance and procedure for providing special clothing, special footwear, and other individual protective gear.

6. To finance the measures specified by this decree within the limits of budget appropriations allocated to the Ministry of Defense of the Russian Federation for maintenance of the Army and Navy.

7. To implement this decree on 1 January 1993.

[Signed] V. Chernomyrdin
Chairman of the Council of Ministers-Government of the Russian Federation

CAUCASIAN STATES

Abkhaz Defense Minister on Conduct of War*934K1119A Moscow SEGODNYA in Russian No 11,
27 Apr 93 p 5*

[Interview with Abkhaz Defense Minister Vladimir Arshb by M.D.; place and date not given: "We Have Learned To Shoot Straight, But I Do Not Know Where the Money For Arms Comes From"]

[Text]

[M.D.] In your view, what is the reason for the failure of the most recent attack on Sukhumi?

[Arshb] I would not call it a great failure. Although the operation did not result in further penetration into the enemy's defense, it did have its pluses, and it revealed a great deal both to us and to the other side. In principle we were convinced that we could take the city as such. But in order to do that we would be forced to destroy Sukhumi, destroy aircraft and artillery with gunfire, and during the storming there would be very many casualties. Any offensive operation with a forcing of a water barrier and storming enemy positions prepared ahead of time will be bloody. During its course more than 1,000 people died on both sides and there were about 2,500 wounded. More than 100 of our men died and, according to our calculations, the enemy had up to 800 dead. There were 170 corpses delivered to Tbilisi alone and the rest had already been transported to the various regions. We decided to withdraw so that there would be no more bloodshed and, I repeat, destruction. Let me remind you that we once left this city—when there was fighting in the outskirts of Sukhumi in the region of the White and Red Bridge—in order to avoid destruction and casualties among the peaceful population. At that time we reached an agreement that we would withdraw our troops to the region of the Gumista River, and the enemy withdrew theirs to the Kelasura River. Unfortunately, as soon as we fulfilled our commitment the Georgian side violated the agreement and brought their armed forces into the city and conducted themselves improperly, to put it mildly.

[M.D.] What is Abkhaz aviation like?

[Arshb] We used it on a large scale for the first time in a recent attack, and it demonstrated that it is able to wage tactically intelligent battle and cause maximum damage. The large number of casualties on the Georgian side was related to the fact that our aircraft waged bombing attacks on a crowd of enemy personnel. Our artillery worked well too. They have learned to fire accurately and precisely because initially we had a very limited number of cartridges and we were strictly accountable for each of them.

[M.D.] Are you experiencing any shortage of arms or ammunition now?

[Arshb] No, not at the moment.

[M.D.] Where does Abkhazia get its funds?

[Arshb] I cannot say, I do not know. I submit an order to the government and they send me as much as I ask for. The republic now has great capabilities—the citrus season has ended, and the tea and tobacco season has begun.

[M.D.] Is it true that Abkhazia has four nuclear warheads?

[Arshb] Not true. Even in our times it is a great problem to get hold of them.

[M.D.] How do you evaluate the discipline in the Abkhaz army?

[Arshb] It is not at the level where I would like to see it. Our army is being created under combat conditions and, unfortunately, the shortage of military personnel is being felt. And civilians are not used to obeying orders. Our last operation showed that in places where military discipline is strict, combat assignments are carried out with fewer losses and greater effectiveness. We are now reorganizing our armed forces.

[M.D.] At the positions near Gumista I noticed that the troops had very meager rations—rice pudding, soup for dinner, and tea in the evening. And they have no uniforms as such. Do you intend to rectify this situation?

[Arshb] The food problem arose a week ago and it will be solved in a couple of days. Before that they had three meals a day and there was a large amount of meat. It will be that way again. As for uniforms, we have plenty of them, but the reorganization is not complete yet and I do not want to issue them.

[M.D.] How do you solve the inevitable military problem of looting.

[Arshb] We have created special militarized subdivisions—they include the people who will go on leave after being at the front. And they perform the function of maintaining order.

[M.D.] What are your predictions about the future of the war?

[Arshb] In September or October reconciliation would have been very easy. Now things have gone too far, and a great deal of blood has been spilled. Moreover, it will be difficult for people to forget how, for example, at the eastern front the Georgians went on the attack and forced women and children to march in front of them to protect them. Or the tanks with living "armors" attached to them. Nonetheless I think that the conflict must be settled only by political means. Even though I am a military man, I want peace. But if there is no choice we will solve the problem the military way—by force.

Russian Officer Views Abkhaz Conflict

934K1119B Moscow SEGODNYA in Russian No 11,
27 Apr 93 p 6

[Interview with unidentified officer of the Transcaucasian Military District by Mariya Dementyeva; place and date not given: "Abkhazia Is Buying Arms From Georgia"]

[Text]

[Dementyeva] It seems that they never run out of arms in the Georgian-Abkhaz war. Yet the transfer of Russian arms to Georgia, for example, was halted by a decision of the parliament of the Russian Federation back in October of last year. Where are they getting their weapons?

[Officer] In spite of the decision of the parliament of Russia, the transfer of arms to Georgia ended on 4 April 1993 in keeping with the agreements of the Tashkent meeting on 15 May 1992. As of today the following have been transferred to Georgia: from the 10th Motorized Infantry Division—108 tanks, 111 BMP's [infantry combat vehicles], 19 BTR-80 [armored personnel carriers], 48 MTOB (small light armored transporter), eight BM-21 (Grad) installations, 90 guns from various systems, 20 mortars, 18 PTUR combat vehicles, more than 200 "Strela-2" PZRK [portable antiaircraft missile system], 13 ZSU23-4 ("Shilka"), 18 ZU23-2, and 12,000 automatic rifles; a division of the Ministry of Internal Affairs turned over eight tanks, six infantry combat vehicles, 18 armored personnel carriers, 12 BTRM, and 2,000 rifles. Russia also gave them an air defense system, including surface-to-air missile complexes of the Krug and Kub types. Georgia bought 800 units of automatic weapons from Romania. Additionally, the Georgians seized from Russian military units 25 infantry combat vehicles, 10 100-mm mortars, 18 85-mm caliber hailstorm [gradoboynyye] antiaircraft weapons, 16 Alazan units for MTOB's, and also about 1,500 rifles.

And Abkhazia is buying the arms. One of the channels is Chechnya. There is information that tiny little ships like fishing craft are transporting arms from Ukraine. And, paradoxical as it may be, it is a fact that weapons—rifles, automatics, grenade throwers, PZRK's—have arrived from Georgia through commercial structures, and from Ingushetia, where Georgia has been actively delivering arms lately. The traders try to sell the Abkhazians the worst ones, the ones nobody wants, those that are worn out and require expenditures on repair and adjustment. All of their aviation—helicopters and airplanes and even "sushka" (SU-25)—is in extremely bad shape.

[Dementyeva] What is the situation with mercenaries? There is talk of a Russian battalion in Abkhazia.

[Officer] There is no Russian battalion in Abkhazia. There is an Armenian one, made up of Armenians living in Abkhazia, and there are Chechen and Northern Caucasian battalions. There are a few Cossacks and there are

Russians—mainly Russians who live here permanently. Incidentally, there are not so many coming to help the Abkhazians; the problem has been exaggerated—by the Abkhazians themselves, in order to show how strong their support is, and by the Georgians, in order to fan anti-Russian sentiments, and by the Russian government, in order to put pressure on the Northern Caucasians.

In general, the number of mercenaries in Abkhazia is not worth mentioning. Here they are fighting not for money but for the idea of independence—they come to help out of a sense of kinship, out of a feeling of friendship for those who have been attacked. Similarly to the way the Slavic ideal drives some people to help the Serbs and the Muslim ideal forces Turks to go and fight in Bosnia.

But what ideal could move a Russian or Ukrainian to go out and spill his blood "for the territorial integrity of Georgia?" That is why the Georgians have to enlist mercenaries. They need them for many things—as pilots, artillery experts, communications specialists, air defense. Thus, for example, they recruited Sergey Rodin, a captain, and a first-class SU-25 pilot. The recruitment is going on in Russia, Ukraine, and the Baltics. Thus about 500 people have joined the Ukrainian battalion—it was recruited in Ukraine by the former deputy commander of the Carpathian Military District, who is currently the deputy minister of defense of Georgia, Kamkamidze. The recruitment is continuing. In Yalta, for example, a certain millionaire named Lagvilava is handling this, and in Nikolayev—Chediya and Shuyev. In Russia, according to available information, they are using the official administrative-military structures, in spite of the law that was adopted forbidding the use of mercenaries.

[Dementyeva] What are the costs?

[Officer] I do not know, but it is difficult to believe that they pay \$5,000 per operation. There are a lot of difficulties in Georgia now since many of the mercenaries' contracts will expire in April, and Georgia is not in a position to extend them since it has not paid them yet. Obviously, a problem is arising, the mercenaries will abandon their positions and demand payment, and situations of conflict are possible here. Now the Georgian leaders are hurrying to arm the local militia as quickly as possible, train them, and replace the mercenaries after taking away their weapons. New units are also being brought into Sukhumi—battalions from Akhaltsikhe, Gori, and Tbilisi.

[Dementyeva] People are saying that during the defense of Sukhumi they placed detachments at the rear of the frontline detachments to kill people trying to retreat, a method used by Stalin near Moscow.

[Officer] Yes, during first night of the Abkhazian attack a battalion of Svans who were defending Ochandara began to retreat and 50 percent of them were shot by Georgian units positioned behind them: that is how they tried to get the Svans to return to their positions. And

when the Mengrels were fleeing to Novyy Rayon, the Georgians occupying positions here tried to force them to return to the front line by firing above the heads of the fighting men and then right at them, but they did not succeed.

[Dementyeva] How can one assess the fighting experience of the two sides?

[Officer] The Georgians fight well mainly with artillery. They use roving batteries, which do not do well in combat but are there for "emergencies," and most of their firing is done with Grad installations. True, there is one tricky aspect here—the Georgians are putting their gun emplacements near residential buildings similar to the way during the war the Germans placed guns in hospitals in the hope that the enemy would not fire on inhabited buildings. Otherwise, they try to fight by the book: the artillery fire from a maximum distance and are constantly changing their tactics. But not very many have died from artillery fire. It is not well coordinated, and here one can see the effects of the fact that the artillery men do not have good nonvisual target acquisition, information about the situation, or data on specific targets. It is interesting that during the last attack the Abkhaz artillery neutralized two artillery batteries and, although their fire was more intensive, not a single Abkhaz artillery unit was neutralized.

As for the rest of the troops, the Georgians gained significant offensive practice in Gagry when they were able to put down a landing party and defeat the poorly organized Abkhaz militia. And the Abkhazians gained good experience in the Sukhumi operation. But in general we cannot speak about significant military experience—for example, Georgian troops have overwhelming superiority in tanks and artillery, and so far they have been unable to carry out a single tactical assignment in Ochamchirskiy Rayon, where they are being opposed by poorly trained and poorly armed partisans who are tormented by hunger and a constant shortage of ammunition. This particular situation is instructive in that the troops were not separated by a river but are constantly in contact and engaging in battle.

[Dementyeva] What are the prospects for this war?

[Officer] The future looks bad and it is not likely to come to anything for either side. Georgia was counting on its lightning speed. But now that they have clearly formed lines, one can see that the Abkhazians will not back down. Georgia has ended up in a very difficult position. Even if they succeed in conducting some kind of military operation and reaching Adler, the population might flee but the Abkhaz troops will go into the mountains. And through the mountains they maintain contact with their allies, and all of the Northern Caucasus will flare up. Georgia will have to engage them in a prolonged war, in which there will be no lull: It will be easy for merchants to deliver arms to the North Caucasians over the highways. Both missiles and tanks will appear here. Georgia

will be blocked and will have a partisan war on its hands with all the terrorist acts, sabotage, and—complete paralysis of economic life.

The Abkhazians have the prospect of going as far as the Inguri River and digging in there. But their weak point is "human resources." They must not allow themselves to sustain losses, and the only way to solve their military problem is through attack. Of course, it is possible to close off the road, but the partisans are exhausted; they will hang on for a day or two and then leave, sustaining losses—they need supplies of ammunition. Nonetheless the existence of two fronts for the Georgian grouping, the constant threat of having the road closed, and the instability in Western Georgia give the Abkhazians the opportunity, if they can accumulate a sufficient quantity of material resources, to go over to the offensive, regardless of how undesirable it may be for them in terms of inevitable losses. A great deal will also depend on the internal political situation within the territory controlled by the Georgian side. It is a bundle of contradictions now. In Sukhumi, for example, there is a multitude of various political units—the militia, the Kitovani guard, Ioseliani's Mkhedrioni, Karkarashvili's spetsnaz, the Okhalaya military police, the Afghantsy [Afghan war veterans] battalion with its unknown allegiance, the regiment of internal forces of the Ministry of Internal Affairs, and, finally, the mercenaries. Datuashvili is trying to take over all of them but not with much success because they reflect the interests of those to whom they are attached in Tbilisi.

Two Views of Abkhaz-Georgian Battle Given

Shevardnadze Scores Russian Participation

93UM0462A Moscow NEZAVISIMAYA GAZETA
in Russian 17 Mar 93 p 1

[NEGA article: "Abkhaz and Georgian Troops Clash in Sukhumi Area"]

[Text]

Russian Ambassador Suddenly Departs on Eve of Battle, Georgia Claims Combat Plan Devised by Russians, with Russian Combat Participation

In the daylight hours of 15 March, Eduard Shevardnadze, head of the Georgian Government, met with Vladimir Zemskiy, Russian Ambassador Plenipotentiary to Georgia, at the request of the latter. Zemskiy said that he must depart for Moscow immediately.

In the evening hours of 15 March, there was an abrupt increase in combat activity. Georgian sources stated that Abkhaz units assumed offensive operations, successfully crossing the Gumista River. They broke through the Georgian defenses of Sukhumi at two locations. Fierce fighting took place throughout the night in the Sukhumi area.

According to Abkhaz sources, that night Georgian troops conducted dense fire on the Abkhaz positions and neighboring villages, using all types of weapons. Georgian armed forces then launched an offensive operation, with the intent of crossing the Gumista River. In a counter-offensive, some Abkhaz Army units were able to cross over to the opposite bank of the Gumista River.

With the advent of dawn, combat activity intensified throughout the front line. Both sides employed aircraft. At 5 am, six aircraft airlifted 600 men from Tbilisi to Abkhazia as reinforcements.

The Abkhaz Ministry of Defense Press Service reported that, by 10 am, the Abkhaz Army had captured a commanding height in the north-eastern part of Sukhumi.

Fighting in the Sukhumi area escalated by the hour.

By midday, the Georgian side was able to muster combat equipment to close the breaches in its defense.

The dead and wounded were taken to a Gudauta hospital. Both sides had suffered casualties.

The Abkhazians distributed leaflets in the area held by Georgian troops, especially Sukhumi. The leaflets made an appeal to Georgian Army officers and enlisted men, specifying conditions that the Georgian Army man must observe if he wished his life to be spared.

Lieutenant General Viktor Sorokin, senior officer in the Russian tactical group, speaking in response to the breakout of military activity in Abkhazia and to statements made by the Georgian Government relative to Russian military units participating in combat activity in support of the Abkhaz side, made the statement: "We are maintaining strict neutrality. In the event our facilities are attacked, we will strike back, and we request that the belligerents observe the 500-meter zone set by Russian troops."

On 16 March, at 8 to 9 am, five boats and one landing craft appeared in the water near Sukhumi. They headed out to sea after Georgian coast artillery fired several volleys.

At approximately 12 noon, a submarine appeared in the vicinity of the lighthouse, departing in an unknown direction.

Unverified information provided by Georgian sources indicated that about 30 fighters were taken prisoner in the daylight hours of 16 March. Half of them were Cossacks and Chechens, but there were Russians and Abkhazians as well.

In the morning of 16 March, Shevardnadze spoke at a session of the Georgian Parliament, saying that, in his opinion, Georgia is the recipient of aggression on the part of Russia. "After what occurred yesterday and today, I can say without hesitation that what we have is virtually a Russo-Georgian conflict. I do not know if

Yeltsin is aware of what is happening, but if he is not, then that is all the worse for us.

"I have arrived at the conclusion that destructive forces in the Russian leadership wish to shift the focus to Georgia, thus taking the pressure off Russia," said Shevardnadze.

He is of the opinion that this is a Russian military action seriously prepared against Georgia.

In the daylight hours of 16 March, Shevardnadze, accompanied by Georgian Minister of Defense Tengiz Kitovani, flew to Sukhumi on an urgent basis.

Shevardnadze stated that mobilization readiness is being initiated in Georgia. He said that he is reserving the right, after his visit to Sukhumi, where he will become familiar with the situation and will meet with Georgian military authorities, to declare in the republic a general mobilization.

According to Georgian sources, as of 4 pm, 19 Georgians had been killed. Dzhaba Ioseliani, first deputy chairman of the Council of National Security and Defense of Georgia, also flew to Sukhumi.

At 2 pm on 16 March, a protest rally organized by political parties of Georgia and Tbilisi was held outside the Russian Embassy building. Another meeting—to request information—was held outside the U.S. Embassy building.

Russian MOD Denies Abkhazia Military Involvement

93UM0462B Moscow KRASNAYA ZVEZDA
in Russian 17 Mar 93 p 3

[Article by KRASNAYA ZVEZDA correspondent Anatoliy Stasovskiy: "Fighting for Sukhumi Continues"]

[Text]

Seven Months of Georgian-Abkhaz Conflict

The warring sides marked the end of the seventh month of hostilities in Abkhazia by increasing the fighting. In the early hours of 16 March, the Gumista front situation became abruptly acute. The belligerents initiated intensive shelling of each other's positions and aerial bombing.

Georgian Army units were the first to launch offensive operations. According to Abkhaz military sources, at about 2 am Georgian subunits attempted to cross the Gumista River after the shelling stopped. The Abkhaz armed units were able to repel the attack. In turn, Abkhaz subunits in the left sector of the front mounted a counterattack, establishing a beachhead on the opposite shore of the Gumista. The morning of 16 March saw stubborn fighting for possession of tactically important heights located in the Sukhumi area. By 1700 hours, Georgian government forces had repelled the Abkhaz

assault; by the morning of 17 March, they were able to restore the line of defense along the Gumista River at several locations.

On 16 March, according to the Georgian Forces Press Center in Abkhazia, the Abkhazians attempted to execute an amphibious landing in the area of Gulripsh—a distance of 15 kilometers from Sukhumi—and break through the line of defense in the Nizhniye Eshery—Shroma axis.

Eduard Shevardnadze, speaking at the 16 March session of the Georgian Parliament, stated that it is "virtually a Russo-Georgian conflict." The Georgian leader also said that the issue of general mobilization will depend largely upon whether or not Russia withdraws her troops from Eshery. Shevardnadze, present these days in Sukhumi, was supplied with information to the effect that in Eshery there is a large concentration of combat equipment, which may be employed in the fighting taking place in the Sukhumi area. This apparently is the Georgian side's reasoning for the systematic shelling of the Russian subunit stationed in Eshery. The last shelling took place on 16 March. A Russian serviceman was wounded, according to our information.

All subunits of the Georgian Ministry of Defense, information and intelligence services, and everyone associated with the ministry have been placed into garrison status.

In the meantime, the Russian Ministry of Defense Press Center has denied a report issued by the Georgian Embassy claiming that Russian military specialists are involved in a plan for large-scale attacks to be launched on Sukhumi by Abkhaz forces. Likewise, the Ministry of Defense Press Center has also branded as "not based in reality" a report, disseminated by the Georgian Embassy in Russia, on possible involvement in the operation by Russian troop battalions, heavy combat vehicles, and aircraft.

Also entering a more acute phase was the situation in western Georgia, where terrorist groups consisting of followers of Zviad Gamsakhurdia led by the Kobaliya brothers are still active. The fighters captured two military trains headed for the area of operations. The trains were carrying weapons and ammunition that are so necessary in the Sukhumi area.

The general situation in the Sukhumi area appears to be one wherein one may expect in the next few days full-scale combat activities in which heavy equipment and weapons and aircraft may be employed. The sides have brought in their best military units. For example, in the case of the Georgians, this is a rapid deployment corps commanded by General Gli Karkarashvili, while the Abkhazians have the Armenian Motorized Rifle Battalion imeni Marshal Bagramyan that was recently formed and administered the oath of allegiance. Clearly, the passing of Sukhumi out of the hands of the Georgians would amount to the loss of a major base of operations.

Therefore, it is not difficult to conclude that the fighting may intensify with every passing day.

Nagorno-Karabakh Military Tactics, Azerbaijan Mistakes Viewed

93UM0489A Moscow KRASNAYA ZVEZDA in Russian
10 Apr 93 p 3

[Article by KRASNAYA ZVEZDA Correspondent Vladimir Urban, under the rubric: "Military Commentator": "How the Kelbadzharskiy 'Cauldron' Emerged After Which Armenia and Azerbaijan Were on the Verge of a Large-Scale Clash"]

[Text] Military success—is still not always victory. Recent events in the Nagorno-Karabakh zone have proven that. The conflict which has already lasted for five years now threatens to develop into open war between Armenia and Azerbaijan after the loss of Kelbadzharskiy Rayon by the Azeris. In any case, for the time being that is a more apparent prospect than the attainment of peace.

Why Rakhim Kazlov Submitted His Retirement

During the summer of 1992, the Azeri Army conducted a large-scale operation and seized the northern portion of Karabakh after two months of battles (July-August). But after that, stability was restored to the front until the beginning of this year. And even the well-armed Azeri Army did not manage to overcome the resistance of the organized Karabakh self-defense forces. By winter, practically 40% of the armored vehicles that the Azeris had obtained from the 4th Combined-Arms Army were no longer operable and not only due to combat losses but also due to improper operation. In a word, the potential of the "privatized" 4th Combined-Arms Army was expended in vain.

It is characteristic that all of the Azeris' vehicles could practically not move after heavy snowfall when the self-defense forces began an offensive in Mardakertskiy Rayon in February because no engineer support whatsoever of combat operations was provided for. Under the difficult weather conditions, Karabakh troops selected the correct tactics—partisan raids which were skillfully planned by specialists of the NKR [Nagorno-Karabakh Rayon] self-defense forces headquarters (officers of the Armenian Armed Forces Main Staff were also involved).

For two weeks while liberating village after village, they advanced toward Sanoyangskiy Reservoir and cut the road to Kelbadzhar, thus depriving the Azeris of a direct link with "Large Land" [Bolshaya zemlya], Western (2nd) Army Corps (and in winter it is impossible to transport heavy vehicles across the mountain range that is up to 3,700 meters high to the north of Kelbadzharskiy Rayon). At that time, they managed to seize up to 15 tanks and BMP's [Armored Infantry Vehicles] that had gotten bogged down in deep snow in the mountain passes.

After that, Azerbaijan Minister of Defense Rakhim Kazlov, who had occupied that post since March 1992, submitted his retirement. Major-General Dadash Radev, who prior to this had commanded 2nd AK [Army Corps] (he was a VDV [Airborne Troops] deputy division commander in the Soviet Army) became the new minister of defense. This appointment was associated with the fact that units under the Radev's command had managed to seriously worry the enemy in the Lachin Corridor Zone. The corps' leading tank subunits had broken through to within 3-4 kilometers of Lachin last autumn.

A "Second Corridor" Is Cleared

After Kelbadzharskiy Rayon actually became an Azeri enclave between Armenia and NKR, it was easy to assume that Western AK could find itself in a "cauldron". Since May 1992, Karabakh has been linked with Armenia by the narrow Lachin Corridor that had been broken through by the engagements. And now the possibility had appeared to create a "second corridor" through Kelbadzhar in the direction of Mardakert (the Azeri name for Agder).

According to the Armenian Ministry of Defense version, the offensive against Kelbadzhar was caused by the fact that here the Azeris had prepared a major troop formation in order to split Karabakh through simultaneous strikes (from Kelbadzhar in the West and Agdam in the East). Such plans probably did exist. But the Azeri Army command authorities should have initially restored control over the Mardakert-Kelbadzhar Road to organize such an operation. But when the counteroffensive that was conducted in the middle of March in Northern Karabakh collapsed, the Karabakh troops remained in the positions that they had gained in February.

It's no coincidence that immediately after that (from 25 March), NKR self-defense forces (the "Armenian Expeditionary Corps", using Baku's terminology) began the Kelbadzhar Operation. On 3 April, they invaded Kelbadzhar and closed the ring. After that, the Azeri troops became uncontrollable. Up to 2,000 soldiers, who along with refugees began to withdraw across the mountain range toward Gandzha, found themselves surrounded. One hundred soldiers surrendered and have now been sent to Stepanakert.

A New Encirclement Is Also Entirely Possible

In order just to correct the situation at the front, Azerbaijan, while following military practice, should have inflicted a counter strike from the South along the Lachin Corridor. But right now that is impossible because its units are not prepared for a rapid regrouping of forces. Yes and time is needed to restore the proper psychological climate in the troops. Moreover, one can only transport reinforcements toward Kubatly Rayon

Center through Fizulinskiy and Dzhebrailskiy rayons. But Armenian detachments have been conducting an offensive in the direction of Fizuli for several days in order to cut off Azerbaijan's Kubatliinskiy troop formation from the "continental" formation. Although Karabakh troops have also stopped 4-5 kilometers from the city, it is clear that this was a preemptive strike. And Azeri troops would find themselves in a new encirclement in the event of success.

But right now the NKR self-defense forces headquarters is more concerned about the security of Lachin Corridor's southern border. Therefore, since 5 April, combat operations have been transferred toward Kubatly. Some detachments are already located 20-30 kilometers from it.

A Diplomatic Dead End

The offensive in Kelbadzharskiy Rayon has also brought to a dead end the negotiations for the peaceful resolution of the Karabakh problem within the framework of the CSCE [Conference on Security and Cooperation in Europe]. Azerbaijan has accused Armenia of direct aggression. Although official Yerevan has rejected the accusation, it is well-known that NKR would hardly have been able to create a combat capable army without its active support.

It is practically impossible for 7,000 reserve forces fighters (another 7,000-8,000 men are in reserve) to carry out offensive operations on several axes, all the more so to control such a broad front. It is characteristic that the Azeri Army did not use aviation during the course of the latest engagements and here it has total superiority. But the army air defense system that has been created in NKR by specialists from Yerevan is actively operating—more than 10 aircraft have been shot down since autumn. Therefore, the Baku command authorities are already not risking to use aircraft.

Azerbaijan also faces a political choice. As we all know, official Baku refuses to recognize the NKR delegation as a participant within the framework of the CSCE negotiating process, preferring to conduct matters directly with Yerevan. Now, when the Armenian leadership has dissociated itself from participation in the Kelbadzhar Operation, Karabakh is already presenting itself as an outwardly independent factor.

As we all know, the UN Security Council has demanded the withdrawal of "local Armenian forces" from Kelbadzharskiy Rayon. And this will most likely take place. But for now it is clearly obvious that the Karabakh troops are pursuing a political goal on the battlefield—to compel Azerbaijan to resort to direct negotiations with them. And negotiations are the only way to resolve the chronic conflict. Any military actions will only postpone the prospects for peace.

MILITARY CONFLICT, FOREIGN MILITARY AFFAIRS

Thermal Imaging Modules

93UM0513C Moscow *TEKNIKA I VOORUZHENIYE*
in Russian Mar 93 (signed to press 3 Jan 93) pp 44-45

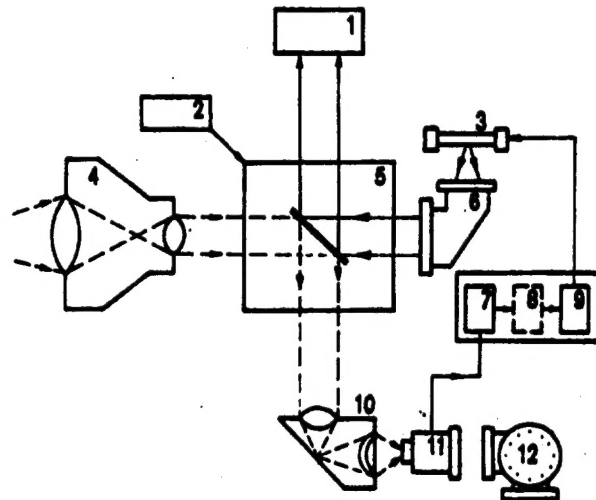
[Article by Lieutenant-Colonel Ye. Dektyarev and Lieutenant-Colonel Ye. Istomin: "Modular Thermal-Imaging Sensors"]

[Text] Such instruments are employed in virtually all of the sighting and vision systems of armored, aviation and naval arms systems of the NATO armies. The principle of their operation is based on the receipt of the intrinsic thermal (infrared) emissions of objects. The principal merits of thermal imaging sensors are the ability to operate at any time of day and under conditions of electronic warfare, as well as against targets that are executed according to Stealth technology. They are many times better than radar systems in spatial resolution (defined as the ratio of the size of the receiving aperture to the wavelength of the emissions being received). These instruments are not susceptible to light interference.

The full frame of the thermal image in real time is formed by multiple-element photo-receiving devices with sensing elements in the form of lines, subarrays (multiple-row lines) or SPRITE-structures combined with mechanical opening devices and electronic units (switching equipment, amplifiers, and image-processing processors). The thermal sensing instruments based on matrix array devices with electrical scanning, however, are still not as widespread as instruments with mechanical scanning.

Armed-forces experts in the United States estimate the potential requirements of the ground, air and naval forces for thermal imaging sensors at roughly 45,000 units. The price of a single unit is about 200,000—300,000 dollars. The high cost of these instruments, in the opinion of foreign specialists, is determined by the diversity of designs. Most of the assemblies with analogous purposes have been designed anew when ordering each new thermal imaging sensor, which has impeded the organization of series production and the adoption of advanced technologies. The concept of "Common Modules" developed by specialists at the Night Vision Laboratory (at Fort Belvoir), later turned into the interservice Night Vision and Electro-Optics Center, has made it possible to reduce expenditures. A base design for a thermal-imaging sensor has been developed on the basis of that concept. The parallel principle of scanning based on photoreceiving devices in the form of lines with 180, 130 or 60 elements depending on the purpose (Fig. 1) was employed. The Common Modules system includes the following standardized assemblies (modules): a photoreceiving device, gas-cooling machinery, a pre-amplifier and a terminal amplifier, a mechanical scanner, an amplifier control unit, light-emitting diodes,

Fig. 1. Block diagram of CM type modular instrument system (AN/ASQ-170):



Key:

1. indicator
2. scanner control module
3. light-emitting diode
4. telescoping neck
5. scanner
6. visible emissions collimator
7. pre-amplifier
8. digital signals-processing unit
9. terminal amplifier
10. infrared emissions shaper
11. photoreceiving device
12. gas-cooling machinery

a visible-emissions collimator, an infrared-image shaper, scanner control modules, interlaced scanning and digital signal processing. The thermal-imaging instruments have three principal parts—an intrinsically thermal-imaging channel, an afocal telescoping neck and an indicator device. The latter two meet the specific requirements of thermal-imaging instruments in the area of the field of view, optical magnification, diameter of the entrance pupil, type of indicator (ocular, thermal-image or helmet-mounted types) and are not part of the common modules. The thermal-imaging channel consists, depending on the purpose, of 9—11 modules. The thermal-imaging sensors constructed on the basis of the uniform base configuration using a limited number of module versions conform to the requirements of all the branches of the U.S. armed forces.

The adoption of modular design principles within the framework of the Common Modules program, according to information from foreign sources, has allowed the United States to launch the large-scale series production of standardized assemblies (modules) and thermal-imaging instruments on the basis of them, with acceptable expenditures and in a comparatively short time (less

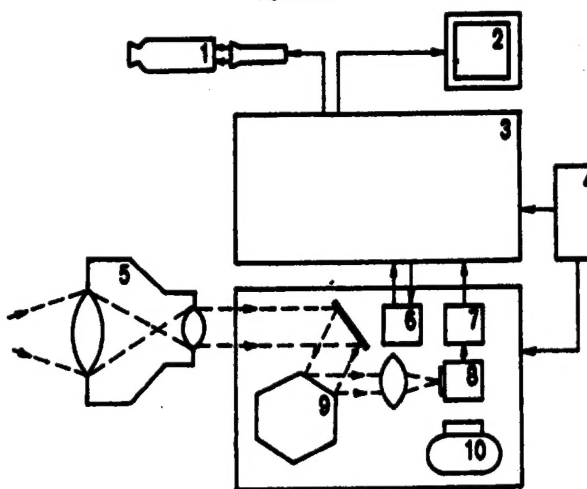
than five years). These devices equip the arms systems of all branches of the armed forces (the M-1 Abrams and M-60A3 tanks, the AH-64A Apache helicopter and the A-7, A-10, F-18, F-111 and other aircraft).

Great Britain and France, taking the same approach as the United States, created and incorporated their own systems of common modules at the beginning of the 1980s. The choice of this or that configuration was defined by the state of the technological base of industry, which affected the overall cost of the programs for the development and procurement of the thermal-imaging sensors. One base technical solution, as a rule, was inherent in the design engineering of each system. The principle of series-parallel scanning with sweeping of the image plane was employed in Great Britain. It is realized on the basis of a photoreceiving device in the form of subarrays (for portable instruments) and with a SPRITE internal signal accumulator (for instruments intended for placement on platforms). France uses the same principle on the basis of photoreceiving devices in the form of subarrays in the format of 5 x 11 elements.

The use of a series-parallel scanning configuration became possible to the extent of improvements in industrial technology for the manufacture of multiple-element emissions receivers and memory and signals-processing microcircuitry. The advantages of that configuration are the comparatively simple interface with the standard thermal-imaging format and better homogeneity of the raster. One shortcoming is the wide band of electrical-signal frequencies compared to a configuration with parallel scanning. This makes it more difficult to protect the electronics against external interference. The base structural configurations of the modular instruments of the British TICM-2 and the French SMT systems are shown in Figs. 2 and 3. The considerable economy of funds through the incorporation of the common-modules programs by the Western countries allowed them to conduct the development of advanced, second-generation thermal-imaging sensors more successfully, as well as to improve existing modular instruments.

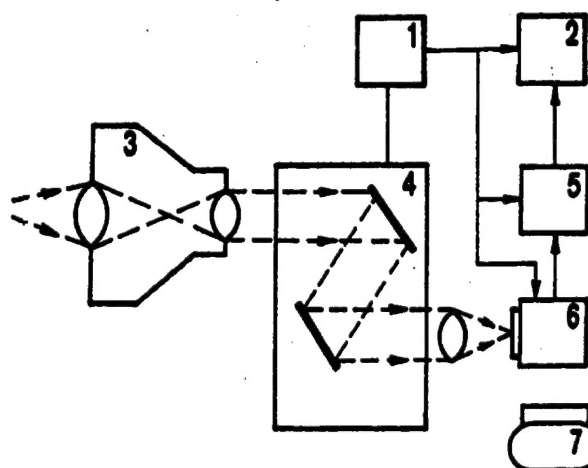
The development of modular thermal-imaging instruments in the long run, in the opinion of foreign specialists, will take the path of automating the process of detecting, identifying and tracking, along with improving the operational parameters of the instruments. Further improvements in the algorithms for information processing and a rise in the information throughput capacity of the channel through integrating the thermal-imaging channel with channels structured under other operating principles (radar, laser) will be required for that. The opinion of foreign experts is that the development of algorithms for automatic target-identification systems is lagging behind the development of the technology for receivers of infrared emissions and processors. Work is being conducted on four basic types of algorithms: image processing using standard patterns of targets; static identification of models according to characteristic traits of the thermal model of the target; on the basis of models, under which the traits of the targets

Fig. 2. Block diagram of TICM-2 modular instrument system:



- Key:
1. eyepiece
 2. display
 3. digital signals-processing unit
 4. power supply
 5. telescoping neck
 6. scanner control circuitry
 7. pre-amplifier
 8. photoreceiving device
 9. scanner
 10. gas-cooling machinery

Fig. 3. Block diagram of SMT modular instrument system:



- Key:
1. built-in monitoring unit
 2. information depiction device
 3. telescoping neck
 4. scanner
 5. signals-processing unit
 6. photoreceiving device
 7. cooling device

are compared with traits computed on the basis of models stored in computer memory; and, on the basis of neuron nets, which are a model of the human mind.

The last two algorithms are being most actively developed at present, as they are, in the opinion of experts, the most effective in the presence of strong local interference as well as under conditions of a rapidly changing environment. The static-identification algorithms and those using standard patterns are the best worked out, and have been employed in a number of weapons systems. They do not, however, possess sufficient stability, and can be used only in a limited number of scenarios under conditions of little-changing environments.

The use of modular photoreceiving devices that include a 480 x 4 or 960 x 4 array of sensing elements operating

in the mode of temporary delay and accumulation, an amplifier and a multiplexer in a single unit is being proposed to increase the resolution capacity and increase the information throughput of the channel in future thermal-imaging sensors with automatic target identification. The possibility of creating dual-spectrum emissions receivers is also expected.

The second-generation modular thermal-imaging instrument systems provide an increase of 40 percent ineffective range against targets compared to first-generation systems (with acceptable cost indicators).

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